

Vosper MTBs

in action



 Warships Number 13
squadron/signal publications

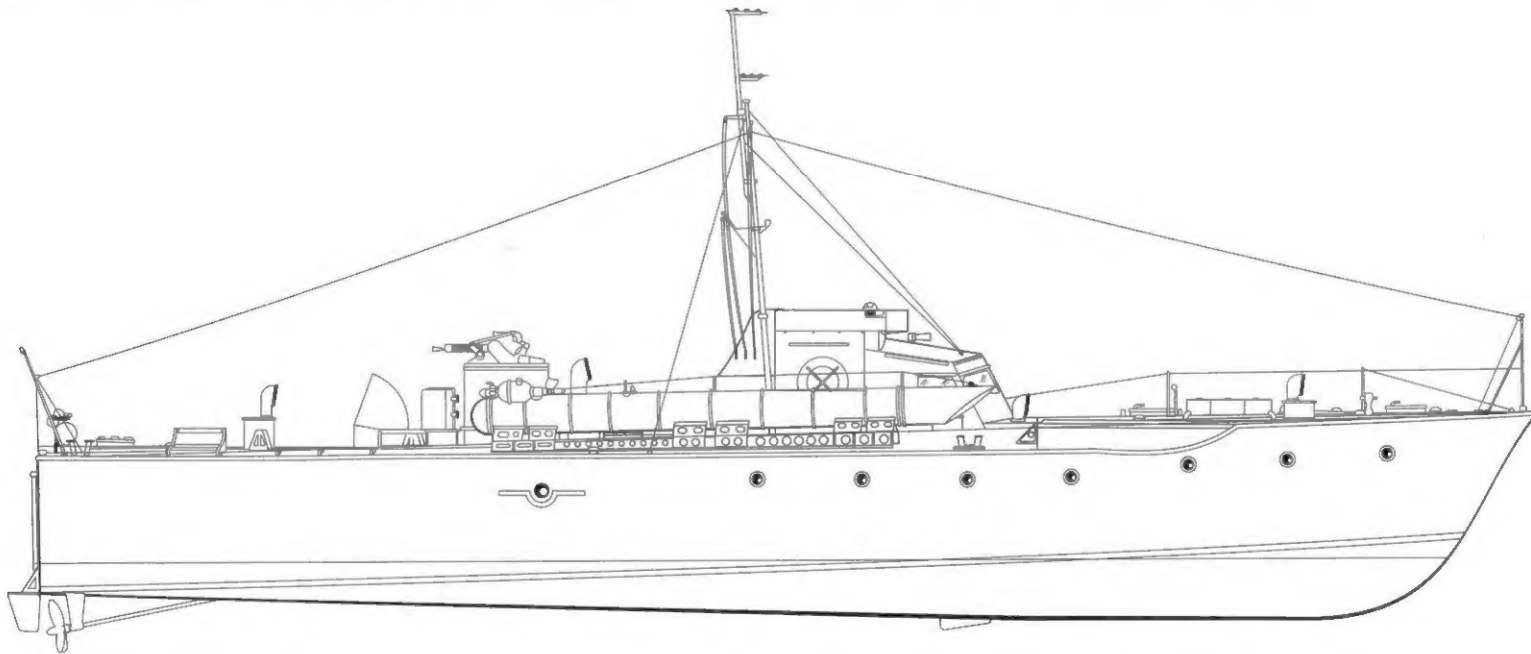
Vosper MTBs

in action

By T. Garth Connelly

Color by Don Greer

Illustrated by Ernesto Cumpian and Richard Hudson



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MTB-76, accompanied by another Vosper MTB, heads for home after engaging an armed German merchant ship in the North Sea during World War II. MTB-76 was a 1940 contract vessel and served with the Royal Navy from March of 1942 until removed from service and sunk in the Mediterranean Sea in April of 1944.

Acknowledgements

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Dedication:

To my family.

This book is dedicated to the loving memory of Miss Donna Lynn "Moxie" Licsak. A very special lady who is sorely missed and whose kind will not be seen again in my lifetime.

It is also dedicated to my very best friend, Mrs. Janice Mulhern. I think that Donna would have become a lady like Janice. She is truly a great friend.

This book is also and most humbly dedicated to the men who served in the British Coastal Forces in the Second World War.

To Nancy Gregoire, Karen Rolocut and Karen Skwara: Three of the BEST friends ANYONE can have, thanks guys!

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MTB-378, an American-built Vosper 1942 Motor Torpedo Boat, cruises at high speed. The boat is armed with two 21-inch (53.3 cm) torpedo tubes flanking the charthouse, a single 20mm Oerlikon gun mounted on the foredeck, and a twin 20mm gun mount aft of the bridge. A whip radio antenna is mounted on the port side of the charthouse. The boat's hull is painted white and light gray, with black below the waterline. She was one of 20 Vosper 1942 contract MTBs built by the Annapolis Yacht Yard in Maryland. After service with the Royal Navy in the Mediterranean Sea in World War II, MTB-378 was returned to the US in 1945. She was then delivered to the Italian Navy in 1948, and served until stricken from service and scrapped ten years later. (Vosper Thornycroft (UK) Ltd via John Lambert)



Introduction

The Motor Torpedo Boats (MTBs) employed by the British Royal Navy during World War II – along with the US Navy's Patrol Torpedo (PT) Boats – can trace their roots to the 1876 torpedo boat HMS LIGHTNING. The British firm Thornycroft produced this 84-foot (25.6 m) long steam-powered craft to carry the newly designed and patented Whitehead torpedo.

Invented in England in 1866 by Robert Whitehead, this torpedo was 14 feet (4.3 m) in length and weighed 400 pounds (181.4 kg). The torpedo's warhead weighed less than 20 pounds (9.1 kg). A compressed air motor propelled the torpedo to a top speed of seven knots (12.97 kmh). The effective range of the Whitehead torpedo was approximately 1000 yards (914.4 m). LIGHTNING could reach a maximum speed of 18 knots (33.4 kmh); however, its endurance of three hours at high speed restricted this boat to coastal operations.

The British International Trophy for motorboats spurred Thornycroft to develop the racing boat MIRANDA IV in 1910. This 40 foot (12.2 m) long single step hydroplane reached a maximum speed of 40 knots (74.1 kmh) – an unheard-of speed for early 20th Century watercraft. MIRANDA IV served as the basis for Thornycroft's later Coastal Motor Boats (CMBs) built for the Royal Navy during World War I. The CMBs were 55 feet (16.8 m) long and armed with two 18 inch (45.7 cm) torpedoes mounted in stern troughs. The boat's crew launched their torpedoes off the stern while the boat raced towards its target. After the weapons were released, the boat was turned sharply out of the torpedoes' path.

The Royal Navy also discovered that CMBs could perform anti-submarine and minelaying duties, although the boats were not designed for these tasks. These lightly armed 'speedboats' of World War I evolved into the British MTBs of World War II.

The Vosper private venture MTB-102 was originally equipped with a single, internally mounted 21-inch torpedo tube. The torpedo was fired through a watertight door in the bow. Torpedo reloading rails were mounted on the aft deck. The hull and superstructure were painted dark gray, while the hull number was black with white trim. (John Lambert)



Vosper Limited

The English shipyard founded by Hubert Edward Vosper was begun as an engineering firm in 1871. The year before, Vosper had received a patent for a special steam engine. During the late 19th and early 20th centuries the Royal Navy employed the firm as a repair and refit facility. During this time, Vosper Ltd also developed its own line of two- and three-cylinder reciprocating engines for powering various military and civilian vessels. The firm was soon on the cutting edge of maritime internal combustion engine development. When World War I began, Vosper constructed steel-hulled workboats – including tugs and motor launches – along with wooden-hulled boats.

During the late 1930s Vosper Ltd developed a V-drive gearbox to facilitate the installation of engines into small spaces. This gearbox also simplified the amidships placement of fuel tanks into small vessels. This internal arrangement would be utilized on most wartime Vosper Motor Torpedo Boats.

MTB-102 – The Private Venture

In 1935 the Royal Navy purchased 60-foot (18.3 m) long torpedo boats designed by Hubert Scott-Paine of the British Power Boat Company (BPB). This development spurred Peter Du Cane, Vosper's new chairman, to develop small, fast, and lethal vessels to win some of these contracts. Vosper Ltd began a privately funded project to design and build a torpedo boat to meet the Royal Navy's requirements. These requirements included a top speed of 40 knots (74.1 kmh) along with the ability to mount a 21 inch (53.3 cm) torpedo tube and a small caliber, automatic anti-aircraft gun mounted in a turret. The vessel's endurance needed to be sufficient to cross the English Channel and the North Sea at night and then be able to patrol for and engage the enemy.

This project – Vosper job number 1763 – incorporated new ideas for different hull designs and more powerful engines than any competing boat possessed through that time. Vosper had to secure MTB powerplants from outside firms, while BPB vessels utilized a Scott-Paine developed marine derivative of the Napier Lion aircraft engine. The 500 brake horsepower (bhp) of Scott-Paine's engine was deemed insufficient for a Vosper MTB. Vosper chose the 1150 bhp Isotta-Fraschini Asso 1000 gasoline engine made in Milan, Italy. This same engine had powered the Italian Navy's M.A.S. (*Motoscafo Anti Sommergibile*; Anti-Submarine Motorboat) torpedo boats since 1929. Two versions of this engine – the ASM 180 and the ASM 182 – were produced, and these were rated from 1000 bhp at 1800 rpm to 1150 bhp at 2000 rpm. The three engines mounted in Vosper's boat were rated at 1050 bhp running at 1500 rpm, which gave the vessel a cruising speed of 31 knots (57.4 kmh). Her engines were fitted in a direct drive arrangement to the three propeller shafts, with the center engine being reversed and mounted further back than the other two engines. No reduction gear was fitted to connect the engines with the shafts.

Vosper's boat was also equipped with two Vosper 75 bhp V8 auxiliary engines, each connected to a single 0.5 kW generator. The auxiliary powerplants could also be connected to the outboard propeller shafts for use during docking maneuvers or silent attacks. The boat's top speed using these engines was nine knots (16.7 kmh).

The project 1763 boat could carry 630 gallons (2384.8 L) of 87-octane gasoline in three tanks of 210 gallons (794.9 L) capacity each. The fuel total was later increased to 990 gallons (3747.5 L) in three tanks of 330 gallons (1249.2 L) each. MTB-102 had a combat range of 240 nautical

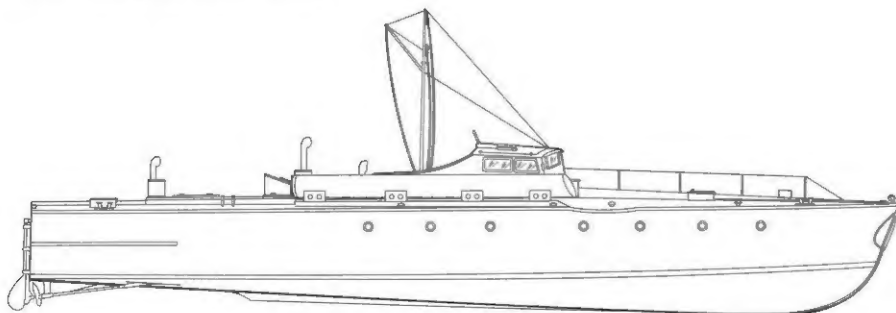
miles (444.8 KM) with maximum fuel and running at 35 knots (64.9 KMH).

Vosper's boat displaced 18.6 tons (16.9 MT) when unloaded and 31.2 tons (28.3 MT) when fully loaded. The boat could reach a maximum speed of 41 knots (75.9 KMH) with a maximum continuous speed of 35 knots (64.9 KMH). MTB-102 was 69.5 feet (21.2 M) in length, with a beam of 14.75 feet (4.5 M), and a draft of 3.167 feet (0.96 M). The vessel was armed with two 21 inch (53.3 CM) Mark VIII*E torpedoes – one for the bow-mounted tube and one reload. Photographic evidence indicates that this boat was equipped with one 20MM Oerlikon gun for tests during 1937-38.

In 1937, Vosper's private venture was tested and accepted by the Royal Navy as MTB-102. She became the 'mother' of subsequent Vosper MTBs of World War II. Power for the pre-war British MTBs was to have been supplied by the same 1150 bhp Isotta-Fraschini engines employed by MTB-102; however, Italy's membership in the Axis caused the supply of these engines to be denied to Great Britain. Subsequent British torpedo boats would be powered by 900 hp American-built Hall-Scott Defender engines pending the availability of 1200 hp Packard 4M-2500 engines provided under Lend-Lease by the United States.

Although MTB-102 did not see operational service in the MTB role, she was pressed into service during the evacuation of the British Expeditionary Force from Dunkirk, France from 27 May to 4 June 1940. She served as the flagship of Rear Admiral Wake-Walker, commander of the rescue of British and French personnel from the advancing German forces. MTB-102 was also one of the last boats to leave Dunkirk. The evacuation force was the largest armada yet gathered in World War II and was, for the most part, successful. Throughout the war, she was armed with either .303 caliber (7.7MM) machine guns or her own prototype 0.5 inch (12.7MM) machine gun turret. MTB-102 was transferred to the Royal Army Service Corps in 1943 and renamed VIMY. This boat was returned to the Royal Navy in March of 1945 and retired from service that October. In 1948 the boat was acquired by a private owner, who sold MTB-102 to the Sea Scouts in 1973. MTB-102 is currently owned by the Norwich Area Scout Council '102' Trust in England where she participates in Sea Scout cruises and appearances at Navy days and other special occasions.

MTB-102, Spring of 1938 (Middle Configuration)



MTB-103

Vosper, Ltd. studied using a stepped hull in a Motor Torpedo Boat in order to achieve higher speeds than with the conventional non-stepped hull. The step located amidships allowed the forward part of the boat to lift slightly off the water at high speed for reduced water resistance. The Coastal Motor Boat (CMB) of World War I used this hull type; however, this hull was not used in interwar boat designs due to the additional drag the step's aft side imposes at low speeds. The Royal Navy ordered a 70-foot (21.3 M) long prototype boat from Vosper Ltd in 1938, designated MTB-103. This vessel was laid down at Vosper's yard on 28 August 1939.

The Royal Navy originally wanted to install two upgraded 1500 bhp Isotta-Fraschini engines in a V-drive arrangement; however, installation of these engines was cancelled due to Italy becoming an enemy of Great Britain. This situation resulted in a redesign of the engine room to allow the installation of two American-built 1350 bhp Packard engines in 1941. Five fuel tanks – two mounted amidships and three in the stern – carried 2360 gallons (8933.5 L) of gasoline. Torpedo tubes were not included in Vosper's general arrangement drawings for this boat. The remainder of MTB-103's design generally followed the standard Vosper MTB layout. MTB-103 displaced 34 tons (30.8 MT) at full load. Her maximum speed was never recorded; however, the vessel's estimated top speed in service was 35 knots (64.9 KMH).

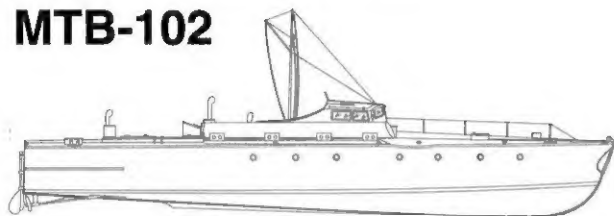
MTB-103 was completed with Packard engines in June of 1941. She never saw action as a torpedo boat, and served during the remainder of World War II as a target towboat redesignated CT 05. The vessel was equipped for her high-speed target towing duties with a gasoline powered winch at the stern. CT 05 was armed with a 20MM Oerlikon gun mounted amidships and two twin .303 caliber (7.7MM) Vickers machine guns forward of the wheelhouse. There is no record of her performance or service during the war.

MTB-102's internal torpedo tube was replaced in the spring of 1938 by two deck mounted 21-inch torpedo tubes. By the summer of 1938, the torpedo tubes were relocated to a position flanking the wheelhouse. Although she did not see operational service as a torpedo boat, MTB-102 was used in the evacuation of Allied forces from Dunkirk, France in 1940. MTB-102 flies the White Ensign of the Royal Navy from her stern flagstaff. (National Maritime Museum)

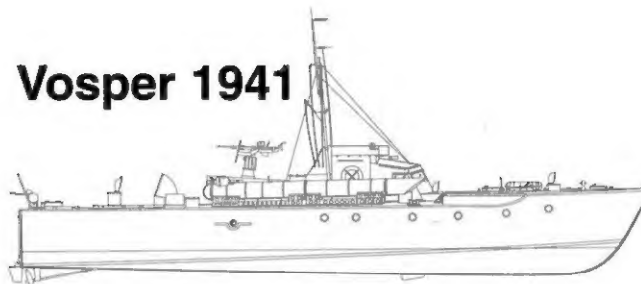


Development

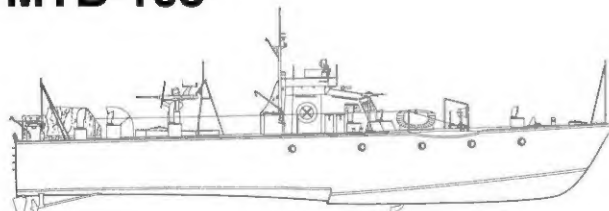
MTB-102



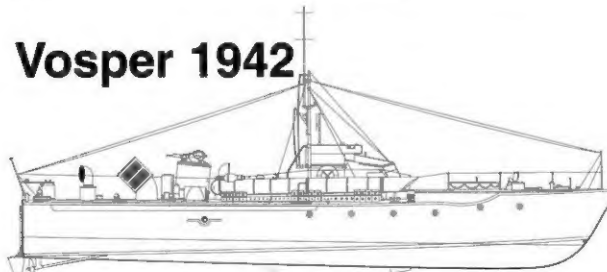
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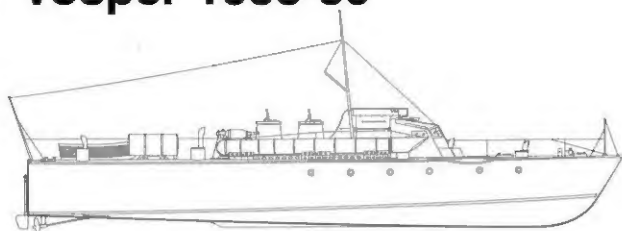
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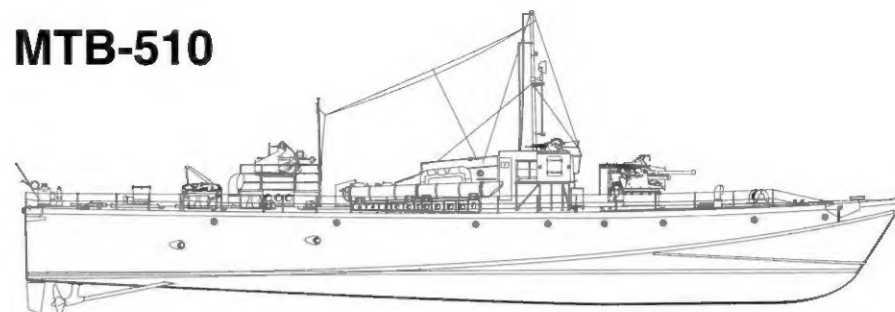
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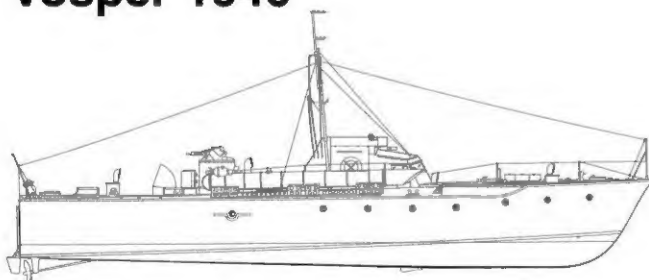
Vosper 1938-39



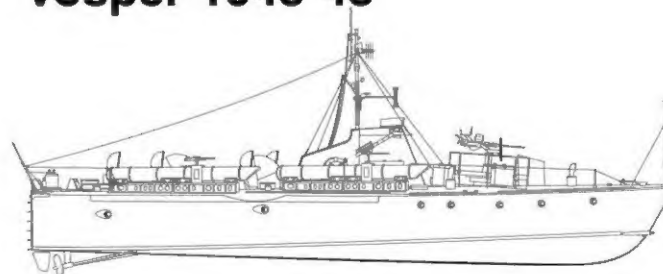
MTB-510



Vosper 1940



Vosper 1943-45



1938-39 Vosper MTBs

The Royal Navy ordered their first four torpedo boats from Vosper in 1938, designating these vessels MTBs 20 through 23. These 70-foot (21.3 m) long boats were built according to Vosper design drawing 8264. A later company drawing, 8663, displayed several design differences from the earlier drawing. These differences included a revised hull line, torpedo tubes set further aft, no torpedo troughs in the hull, and an altered engine room layout. MTBs 29 and 30 were built to this later design.

The next ten boats (MTBs 31 through 40) were ordered under Admiralty contract CP/BB/45405/39 in 1939. These vessels were virtually identical to the 1938 MTBs. Power from three 1150 brake horsepower (bhp) Isotta-Fraschini gasoline engines enabled the 1938-39 Vosper boats to reach a maximum speed of 40 knots (74.1 kmh). Displacement of these vessels ranged from 35 to 38 tons (31.8 to 34.5 MT). Armament for both the 1938 and 1939 Vosper boats consisted of two 21-inch (53.3cm) torpedo tubes straddling the wheelhouse and two .5 inch (12.7mm) Vickers machine guns in a Mark V mount on the aft deck. The boat was crewed by ten men – two officers and eight enlisted men.

Italy's entry into World War II on the Axis side in 1940 ended the supply of Isotta-Fraschini engines for Britain. This resulted in the British selling MTBs 20, 21, and 23 to Romania in 1940. MTB-20, renamed Viforul, and MTB-23, renamed Vijelia, were both sunk from debris from a Romanian steamer which hit a mine in the Black Sea on 9 November 1941. Viscoulul, the former MTB-21, was captured by the Soviets in September of 1944 and pressed into service as TKA 955. This boat was returned to Romania in September of 1945.

Beginning with MTB-34, the 1939 contract Vosper boats were powered by 900 hp Hall-Scott supercharged engines supplied by the United States. The greater weight of these powerplants – each weighing 1579.7 lbs (716.6 kg) more than the Isotta-Fraschini engines – required Vosper to redesign the MTB's engine room to accommodate the Hall-Scott engines.

The MTBs powered by Hall-Scott powerplants displaced 39.75 tons (36.1 MT) – nearly two tons (1.8 MT) greater than vessels employing Isotta-Fraschini engines. This greater weight with reduced horsepower resulted in the boat's maximum speed being reduced to 28 knots (51.9 kmh). The 1938 and 1939 boats were built using double diagonal mahogany strips, and were equipped with a bullet-proof bridge and wheelhouse according to design drawing 9462.

Radar was introduced to the 1938-39 Vosper boats in the form of the Type 286PU unit in 1941. This system was the first radar developed for small vessels and was developed from the ASV Mark I aircraft radar. The Type 286PU could detect an enemy torpedo boat ('E Boat' to the British) at a range of two miles (3.2 km) under reasonably good conditions. However, this radar could not provide accurate bearing data for the MTB crew. The Type 286PU's virtue was its ready availability to the MTBs and an installation time of less than one week.

MTBs equipped with the Type 286PU radar were also equipped with the Type 244 IFF (Identification Friend or Foe) system. IFF interrogators were prefixed in the 24 series, while responders were coded in the 25 series. The Type 253 transponder was standard equipment for these vessels until the end of World War II. Late in 1942, the Type 291U radar and Type 242 IFF were installed in MTBs. The Type 291U set featured better transmission and modulation valves and improved cathode ray tube (CRT) controls compared to the earlier Type 286PU.

Packard engines rated from 1200 to 4050 hp were retrofitted into the 1938-39 Vosper boats during 1941 and 1942. These powerplants enabled the vessels to achieve a top speed of 37.5 knots (69.5 kmh). These MTBs carried a total of 2725 gallons (10,315.2 l) of gasoline in three fuel tanks. The center tank held 1025 gallons (3880 l), while the two wing tanks each con-

tained 850 gallons (3217.6 l).

The MTBs' small lifeboats were replaced by Carley floats constructed from balsa. A chemical smoke apparatus was installed at the stern to generate smokescreens using Chlor-Sulphonic Acid (CSA). The dense white smoke produced by the apparatus was piped off the stern over the water and was effective for up to 20 minutes. The crew of the MTB was increased from ten to 12 personnel (two officers and ten enlisted men) due to the additional equipment carried by these vessels. Living conditions aboard the MTBs were cramped and uncomfortable due to the small size of the crew quarters and lack of dry clothes and heat amid the cold and wet operating conditions of these vessels. This resulted in crews living ashore as much as possible when their boats were in home waters.

Armament for the 1938-39 MTBs was standardized around two 21-inch (53.3cm) torpedo tubes mounted alongside the wheelhouse. Close-in defense was provided by two twin .5 inch (12.7mm) Vickers machine guns in powered turrets mounted amidships and two twin mounted .303 caliber (7.7mm) Lewis or Vickers machine guns forward of the wheelhouse. The older Lewis gun was superseded from 1940 by the Vickers weapon. Additionally, it was common for boats to carry a box of hand grenades for boat-to-boat fighting.

The Vosper 1938 and 1939 MTBs saw extensive service with the Royal Navy in the English Channel, the North Sea, and the Mediterranean Sea during World War II. Two boats (MTBs 29 and 30) were lost in action between 1940 and 1942. MTBs 33, 37, 39, and 40 were bombed by German aircraft while under construction at Portsmouth in 1940. Three of the seven remaining boats (MTBs 31, 32, and 34) were withdrawn from active service in 1943 and converted into target towboats. These boats were redesignated CTs 22, 24, and 23, respectively.

The 1938 contract vessel MTB-22 was equipped with two 21-inch torpedo tubes mounted along the sides of the deck. A tub mount for two .303 caliber machine guns is located amidships. MTB-22 cruises past MTB-102 at the Reserve Fleet Review at Weymouth, England in August of 1939. She flies the White Ensign from the topmast and the stern, and a Union Jack from the jackstaff at the bow. (John Lambert)





Optional 350-gallon (1323 L) tanks mounted on MTB-30's aft deck extended the vessel's operating range over internal fuel alone. These tanks were primarily used while the boat was ferrying from port to port and were rarely used in combat. A twin mount .5 inch Vickers machine gun has replaced the two .303 caliber machine gun tubs of early 1938 and 1939 contract boats. A canvas cover was placed over the opening of the 21-inch torpedo tube. The starboard wing engine exhaust port was located just above the waterline on the aft hull. The hull and superstructure was painted dark gray with a black pennant number on the bow. MTB-30 lies in the water in July of 1940. (Vosper Thornycroft (UK) Ltd via John Lambert)



MTB-35 flies the Red Ensign, the British merchant flag, during manufacturer's trials in early 1941. When the Royal Navy accepts a boat or ship into service, the White Ensign of the service is hoisted in place of the Red Ensign. Six depth charge racks lined the port side of the hull; however, these boats normally carried only two depth charges on each side. Two sailors stand by the Mark V twin mount for the .5 inch (12.7mm) Vickers machine guns. MTB-35 served from April of 1941 until November of 1943. (Vosper Thornycroft (UK) Ltd via John Lambert)



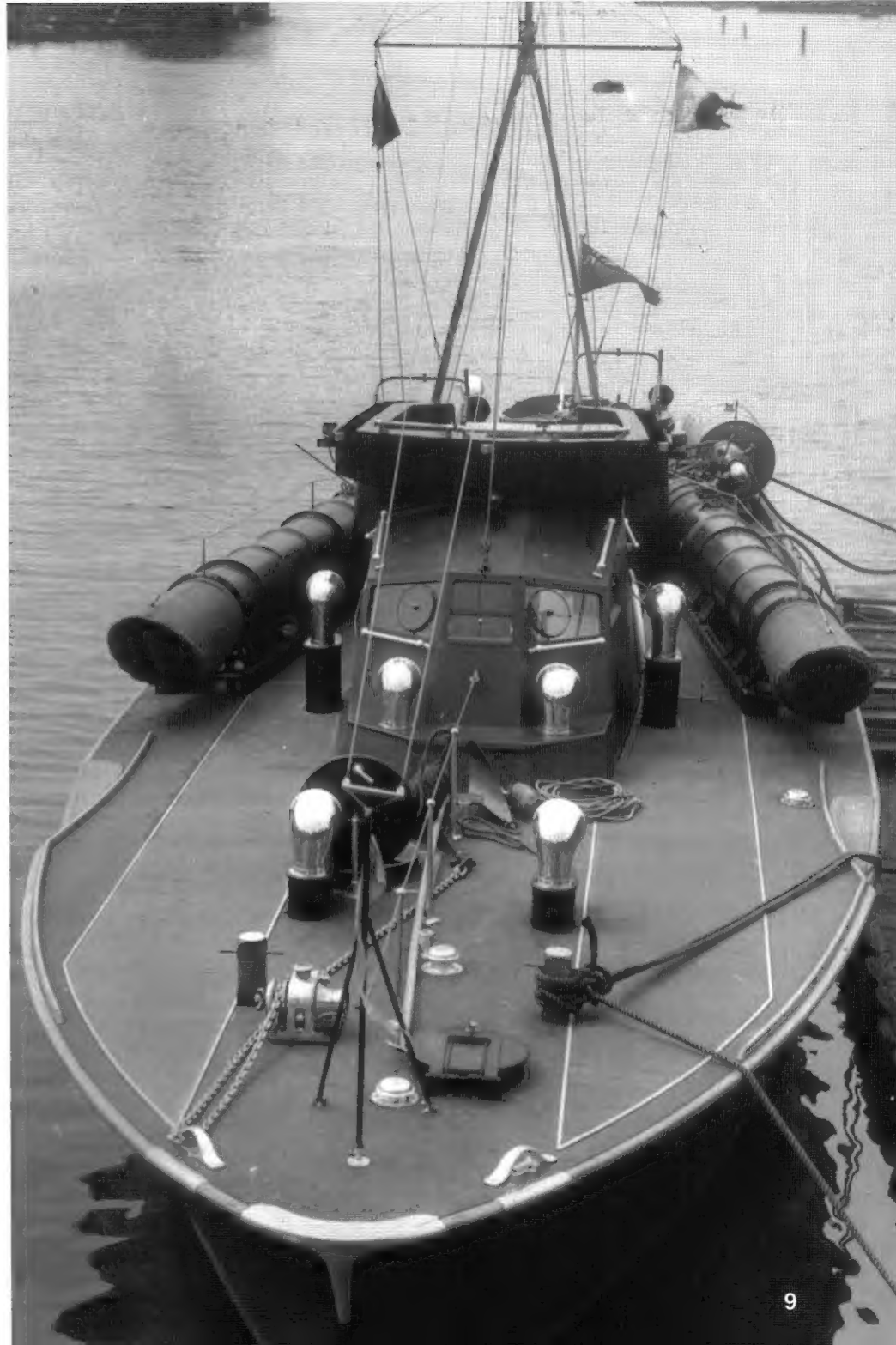
MTB-30 heads out of harbor at her full speed of 28 knots (51.9 kmh). She appeared in a later color scheme of white and dark gray for North Sea operations. Two .303 caliber (7.7mm) Lewis machine guns were mounted on pintels flanking the wheelhouse. These weapons provided close-in protection against enemy aircraft and surface vessels. A depth charge was mounted on a starboard side rack on the aft deck. MTB-30 struck a German mine in the North Sea and sank on 18 December 1942. (Imperial War Museum)



(Above) MTB-32 cruises under the White Ensign after acceptance by the Royal Navy on 5 July 1940. Troughs in the area separating the top deck and hull sides allowed torpedoes to leave the tubes without striking the vessel. The lighter color of the Mark V twin .5 inch gun mount indicated a recent installation of this mount in place of the earlier .303 caliber machine gun tubs. The two 350-gallon long-range fuel tanks installed on the aft deck could be jettisoned in an emergency. (Vosper Thornycroft (UK) Ltd via John Lambert)

(Right) One of three MTBs sold to Romania in 1940 is moored at the dock prior to delivery. The six ventilators on the foredeck and wheelhouse were polished; however, they were repainted gray for combat use. The torpedo tubes were angled out 7.5° from the bow. (Vosper Thornycroft (UK) Ltd via John Lambert)

(Below) MTB-35 performs manufacturer's trials in April of 1941. Cooling water from the port engine is discharged from MTB-35's aft hull exhaust opening. The boat was painted dark gray with a black pennant number on the hull. The boat hook stowed horizontally on the foredeck was used to pull people from the water and fend off other boats. (Vosper Thornycroft (UK) Ltd via John Lambert)



1940 Vosper MTBs

The 1940 British Admiralty budget authorized funding for 89 Motor Torpedo Boats (MTBs), with Vosper receiving the majority of these orders. The first ten Vosper boats (MTBs 57 to 66) were ordered on 26 February 1940. While these boats were under construction, the Admiralty ordered six additional boats (MTBs 67 to 72). This order included MTBs 69 and 70, ordered by Greece (as T3 and T4, respectively) until requisitioned by the British that year. MTBs 71 and 72 were originally the Norwegian Nos. 7 and 8 until taken over by the Royal Navy. Vosper received an order for 27 more boats (MTBs 73 to 99) on 14 May 1940. This order included a replacement for MTB-75, which was destroyed by German bombing while being built.

The J. Samuel White firm in Cowes, England was contracted to construct a further 12 boats using Vosper drawings on 20 May 1940, under the designations MTB 201 to 212. Greece ordered four additional torpedo boats; however, these boats were not delivered as a result of Greece being overrun in April of 1941. These boats were incorporated into the Royal Navy and designated MTBs 218 to 221. J. Samuel White built four final 1940 contract boats, MTBs 242 to 245, as attrition replacements for MTBs 33, 37, 39, and 40.

The first ten boats were identical to 1939 Vosper boats built at Portsmouth and were powered by three American-built 900 hp Hall-Scott engines. These vessels were later re-engined with three 1200 hp Packard engines – also supplied by the United States.

The 27 boats ordered on 14 May 1940 were the first Vosper MTBs to feature Packard engines as standard equipment. These vessels were almost identical to previous MTBs; however, Vosper began to install a small rudder amidships on the bottom of the hull. This added rudder helped decrease the turning radius of the boat compared to the radius from the two stern rudders alone. Displacement of the 1940 Vosper MTBs increased to 55 tons (49.9 MT) under a full war load.

The two wing engines directly drove the outer propeller shafts, while the center engine drove the middle shaft through a V-drive. Two Ford V8 auxiliary engines provided power to the boat's systems while the craft was moored or at the dock. The auxiliary engines could also be connected to the outboard propeller shafts for 'silent running' at a maximum speed of 6.5 knots

(12 KMH). The installation of Dumbflow silencers to the engines resulted in the removal of one auxiliary engine per boat in 1943. This silencer resulted from experiments conducted by Vosper in early 1943 on means of reducing engine noise while maintaining operating efficiency. The Dumbflow silencer was a small, trashcan-shaped device placed in the engine exhaust system. At low power the exhaust gases were diverted through the Dumbflow silencer under continuous water spray, while at high power the exhaust passed straight through the device. This modification also saved some weight on the boat.

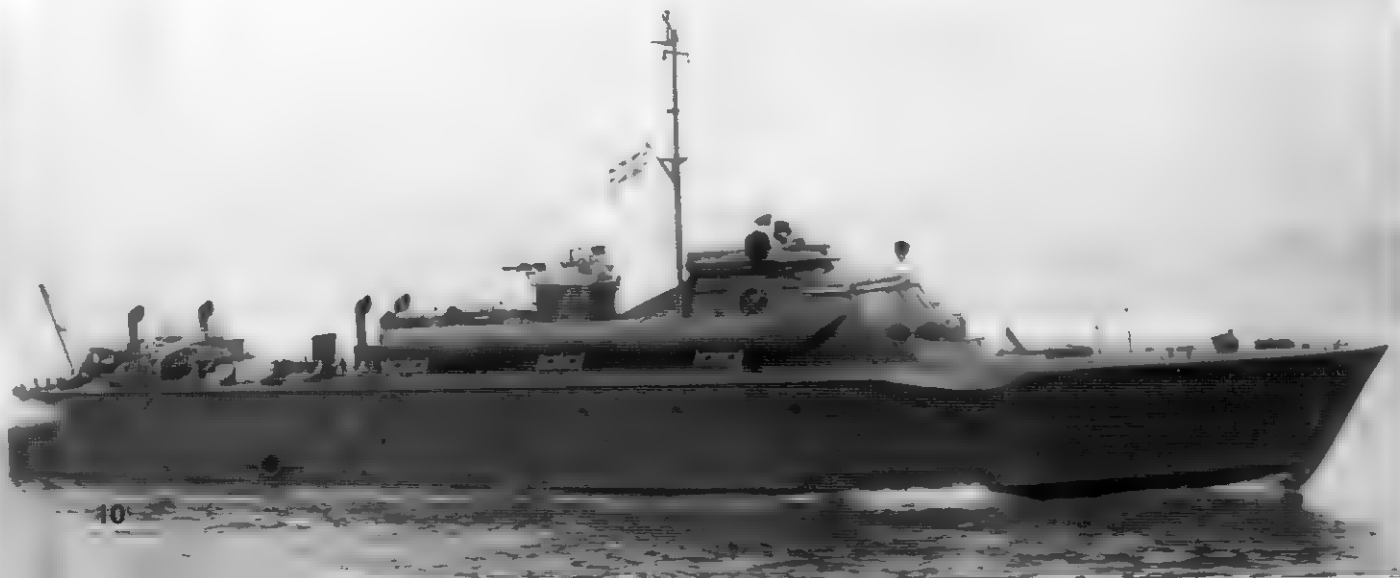
The increase in the MTB's displacement slightly reduced the vessel's maximum speed to 38.9 knots (72.1 KMH) at 2400 rpm and a continuous speed of 35.9 knots (66.5 KMH) at 2200 rpm. The 1940 Vosper MTBs had a range of 400 miles (643.7 KM) at 20 knots (37.1 KMH). This range was possible with additional fuel tanks in the aft hull which held 1078 gallons (4080.7 L) of 100-octane gasoline in addition to the 1065 gallons (4031.5 L) carried in the main tanks forward of the engine room.

Steering arrangements on the 1940 MTBs were retained from earlier Vosper designs, with helm positions located in the wheelhouse and on the bridge. The wheelhouse was protected by armor plate, while earlier boats employed an armored plate swung down from the deckhead when the boat went into action.

These MTBs were equipped with Type 286 radar in 1941; however, this unit proved to be highly unreliable and was seldom used. The armament package remained the same as previous Vosper boats, including two 21-inch (53.3CM) torpedo tubes mounted alongside the wheelhouse. One twin-mount .5 inch (12.7MM) Vickers machine gun was mounted amidships and two twin-mount .303 caliber (7.7MM) Vickers machine guns flanking the wheelhouse. A box of hand grenades for close-in fighting was also carried. These 1940 Vosper boats additionally had provisions for four depth charges in roll-off racks on the aft deck for use against enemy submarines. The depth charges were rolled off the side to attack submarines and pursuing surface vessels. A 20MM Oerlikon cannon was mounted on the foredeck ahead of the bridge late in the war.

Six of the 39 MTBs of the 1940 contract were lost in action in the Mediterranean Sea, the North Sea, and the French Atlantic coast. Six boats (MTBs 90, 91, 92, 94, 96, and 98) were transferred by the British to the Free French Navy in late 1942. The Free French vessels remained operational in the Allied cause throughout the remainder of the war. Most of the remaining MTBs served with the Royal Navy until they were removed from service between April of 1944 and March of 1946. These vessels were then disposed of and sunk in the Mediterranean Sea.

MTB-69, wearing a light gray pennant number on her dark gray hull, moves at slow speed in harbor under overcast skies. Exhaust from the starboard auxiliary engine leaves the boat via the small port in the aft hull. Ropes stowed on the after deck were used for mooring the boat and for towing. MTB-69 was originally built for Greece as T.4 before being requisitioned by the Royal Navy in 1940. (National Maritime Museum)





MTB-73 was the first Vosper MTB powered by three 1200 hp Packard 4M-2500 engines supplied by the United States. These power plants enabled the vessel to reach a top speed of 38.9 knots (72.1 kmh) – 10.9 knots (20.2 kmh) faster than the top speed of the Hall-Scott powered MTBs. MTB-73 flies the Red Ensign and a signal flag while undergoing Vosper's trials in October of 1941. (Vosper Thornycroft (UK) Ltd via John Lambert)

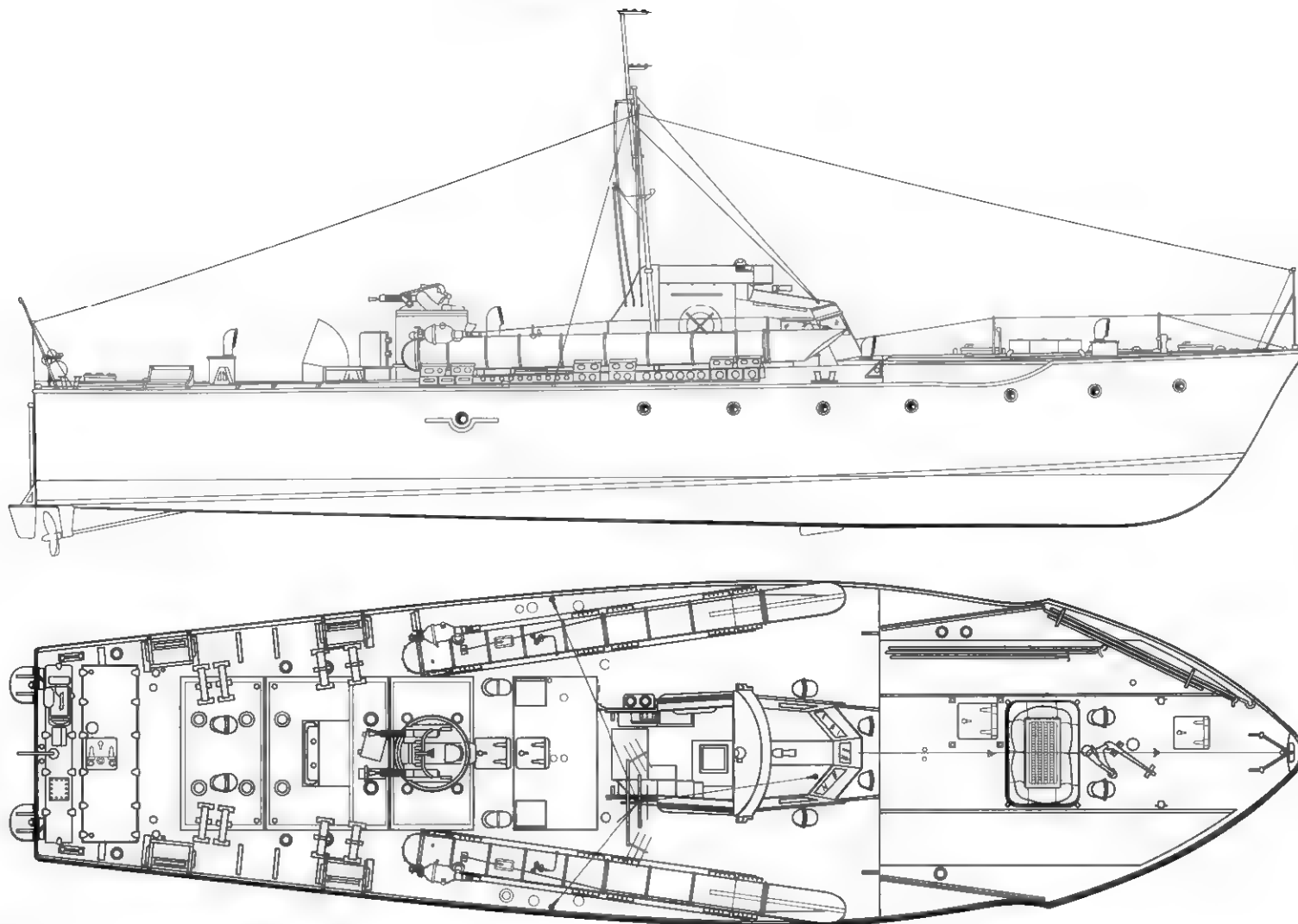
MTB-77's dark gray pennant number was painted on a gray hull as a low-visibility measure. The boat's paint scheme is faded from months of operations. A canvas cover protected the opening of the torpedo tube from corrosive seawater. MTB-77 served in the Mediterranean Sea until sunk by German aircraft off Vibo Valencia, Italy on 8 September 1943. (National Maritime Museum)



MTB-73 was equipped with a Type 286 surface search radar antenna at the top of its mast. This radar enabled torpedo boats to sight German 'E-boats' (enemy torpedo boats) at up to 2 miles range. MTB-73 is moored at the Vosper yard in Portsmouth, England prior to acceptance by the Royal Navy following installation of the radar. (Vosper Thornycroft (UK) Ltd via John Lambert)

Dark anti-skid surfaces were placed on the foredeck of this early Vosper MTB to enable crewmen to maintain their footing. The torpedo troughs cut into the bow resulted in the foredeck's diamond-shaped appearance. Two coils of rope for mooring and towing were placed on the foredeck, while a third coil was put on the aft deck. Four empty depth charge holders – two per side – were mounted behind the torpedo tubes. (Vosper Thornycroft (UK) Ltd via John Lambert)





Vosper 1940 Motor Torpedo Boat

Length.....70 feet (21.3 m)

Beam.....19 feet 2.5 inches (5.9 m)

Forward Draught...2 feet (0.6 m)

Aft Draught.....6 feet 3 inches (1.9 m)

Displacement.....55 tons (49.9 MT)

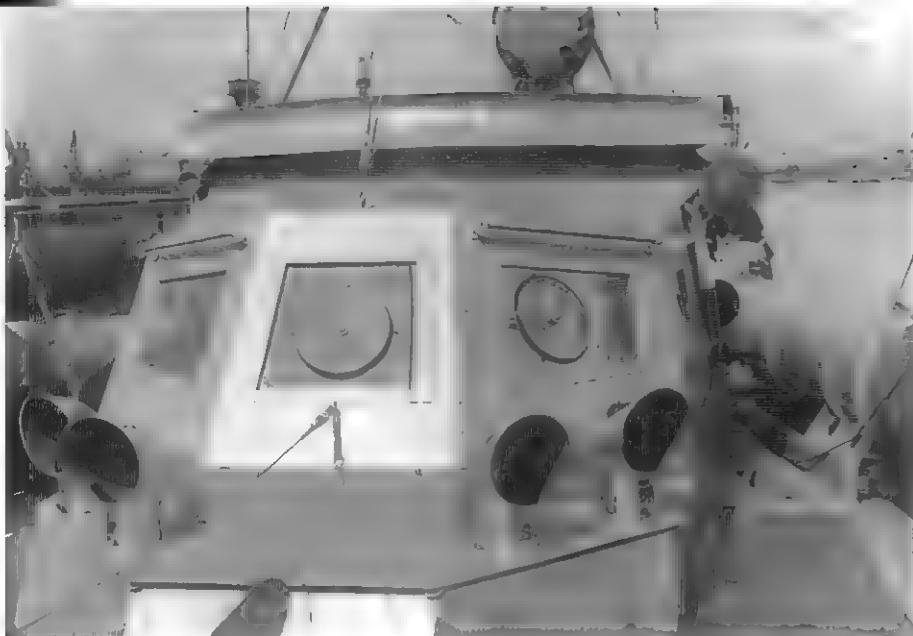
Powerplant.....(First ten boats) Three 900 HP Hall-Scott Defender liquid-cooled engines
 (Next 27 boats) Three 1200 HP Packard 4M-2500 liquid-cooled engines
 (All 37 boats) Two Ford V-8 liquid cooled auxiliary engines

Speed.....38.9 knots (72.1 KM/H)

Range.....400 miles (643.7 KM) at 20 knots (37.1 KM/H)

Armament.....Two 21-inch (53.3 CM) Mark VIII torpedoes
 Two .5 inch (12.7MM) Vickers Mark I machine guns in Mark V mount
 Provision for four .303 caliber (7.7MM) Vickers Mark I machine guns in two
 twin mounts flanking the wheelhouse
 Four Mark VII depth charges

Crew.....12 (Two Officers, Ten Enlisted Men)



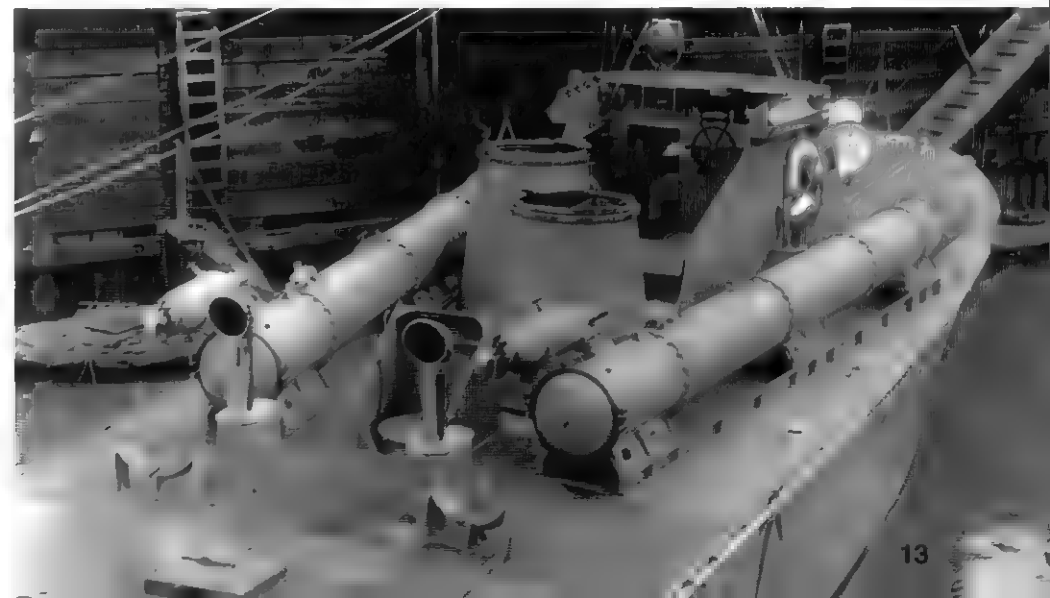
The ventilators mounted in front of the wheelhouse windows brought fresh air below decks. Clear view screens installed in the center and port wheelhouse windows insured clear visibility when the rest of the windows were fogged up. A wind deflector was mounted in front of the bridge to reduce airflow in the faces of personnel there. This Vosper MTB was originally built for Greece until requisitioned by the Royal Navy in 1940. (Vosper Thornycroft (UK) Ltd via John Lambert)

A canvas cover was placed on the opening of the starboard 21-inch torpedo tube of Greek torpedo boat T.4 in 1939. The tripod fitted to the top of the tube is believed to be a mount for a .303 caliber (7.7mm) Lewis or Vickers machine gun. A red and white life ring was mounted on the side of the wheelhouse. T.4 was requisitioned by the British and renamed MTB-69 in 1940. (Vosper Thornycroft (UK) Ltd via John Lambert)



A magnetic compass is housed at the top of MTB-73's bridge, directly above the helm. Three engine throttles are mounted below and right of the compass, with the engine room telegraph placed alongside the throttles. The telegraph relayed instructions to the engine room. Two torpedo-firing levers are placed right of the telegraph. The open door leads to the wheelhouse. (Vosper Thornycroft (UK) Ltd via John Lambert)

The two staggered tubs behind the bridge of this MTB intended for Greece housed mounts for .303 caliber machine guns. Cylinders attached to the aft section of the torpedo tubes housed explosion vessels for discharging the torpedoes. Torpedo cradles mounted behind each tube held reload torpedoes prior to loading the tubes. MTBs carried two torpedoes on operations. Reloading was accomplished at their base or from a support vessel away from the combat area. (Vosper Thornycroft (UK) Ltd via John Lambert)

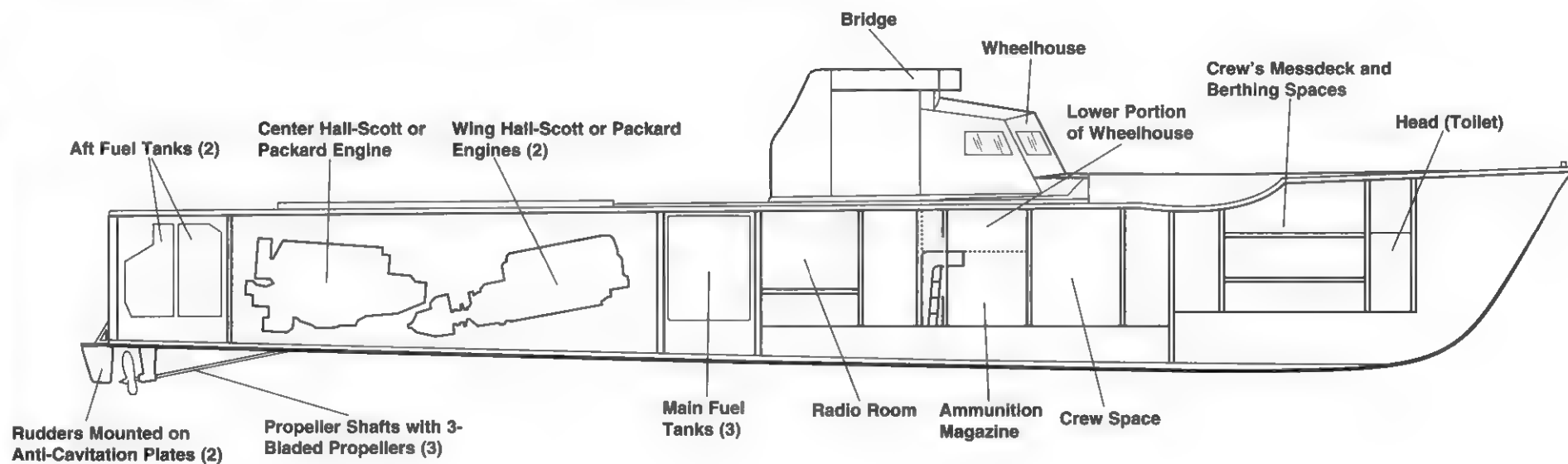


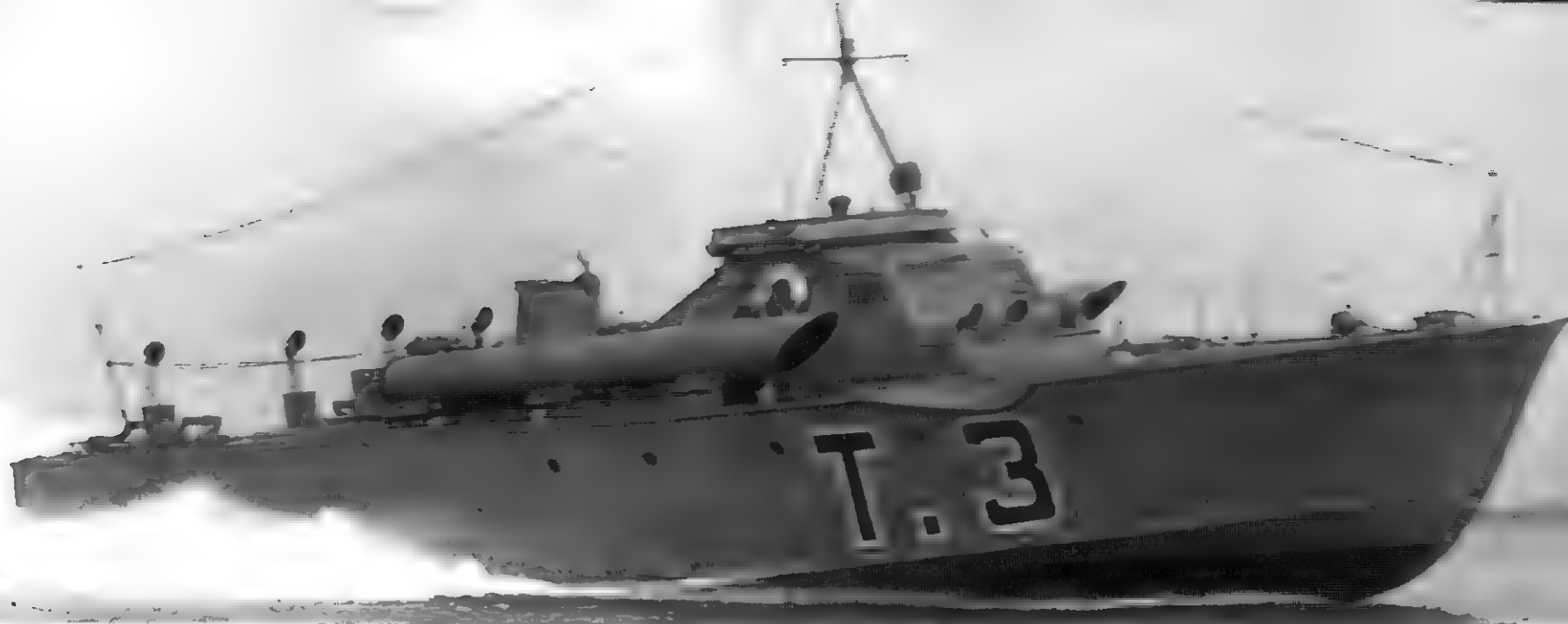


MTB-218's engine room access hatch was placed immediately aft of the twin .5 inch (12.7mm) Vickers machine gun mount. The Red Ensign flies from the mast while this boat remains Vosper's property prior to Royal Navy acceptance in the spring of 1941. MTB-218

was one of four additional Vosper boats ordered by Greece in 1940; however, the British requisitioned her when Greece was overrun in 1941. (Vosper Thornycroft (UK) Ltd via John Lambert)

Vosper 1940 MTB General Arrangement





(Below) The messdeck of MTB-351 was typical of the close quarters found in Vosper MTB crew spaces. Meals were served on hinged wooden tables in front of the upholstered benches. The door past the table led to the officers' head (toilet). An opened hatch on the ceiling led to the top deck. (Vosper Thornycroft (UK) Ltd via John Lambert)

(Above) T.3, a Vosper 70-foot (21.3 m) MTB built for Greece, undergoes a trial run in 1939. The pennant number was painted in black with white trim on the dark gray hull. No machine guns were fitted to the amidships gun tubs for the manufacturer's trials. The British requisitioned T.3 in 1940 and renamed it MTB-70. (Vosper Thornycroft (UK) Ltd via John Lambert)

(Below) The center engine of MTB-54 was located in the aft end of the engine room, with the two wing engines mounted forward. Instruments for the center engine were displayed on an upright panel in front of the powerplant. The water-cooled engine exhaust pipe led to the port side of the boat. The ladder provided access to the aft deck. (Vosper Thornycroft (UK) Ltd via John Lambert)





MTB-74 is moored at Portsmouth, England prior to participating in the St. Nazaire raid on 27/28 March 1942. The two 18-inch tubes mounted on the forecastle allowed torpedoes to be launched over the torpedo nets guarding the harbor. Much of the bridge was cut away and a canvas screen installed to protect the wheel and helmsman against the elements. (Vosper Thornycroft (UK) Ltd via John Lambert)

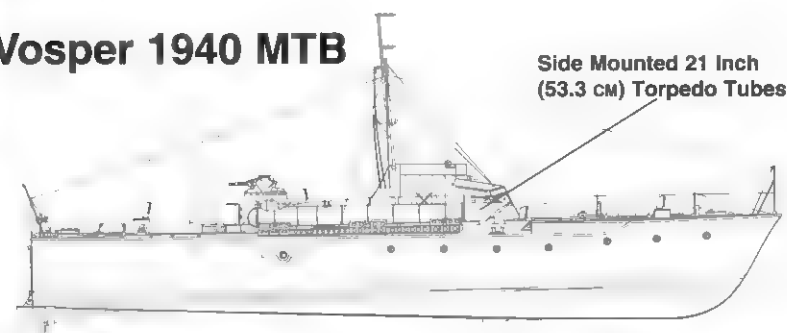
MTB-74

MTB-74 was a 1940 contract torpedo boat specially rebuilt by Vosper for the Royal Navy's use in the raid on the German-held harbor of St. Nazaire, France on 27/28 March 1942. Engineers replaced the 21-inch (53.3 cm) torpedo tubes mounted amidships with two 18-inch (45.7 cm) torpedo tubes on the foredeck. The torpedoes were packed with 1800 pounds (816.5 kg) of explosives to be detonated by delayed action fuses set to go off after a set period of lying on the harbor's bottom. After MTB-74 reached the torpedo nets defending St. Nazaire, the two torpedoes would be fired over the nets and settle to the bottom after their runs to explode later under the lock gates. The torpedoes exploded after the raid and caused major, yet repairable damage to the lock gates.

The boat was then steered alongside the converted American-built four-stack destroyer HMS CAMPBELLTOWN (formerly USS BUCHANAN, DD-131). CAMPBELLTOWN rammed the drydock caisson, ripping 40 feet (12.2 m) off her bow. British commandos disembarked from the stricken ship and surviving crewmembers of CAMPBELLTOWN were taken off by MTB-74. The torpedo boat turned towards Falmouth, England when German shore gunners fired on and hit MTB-74, resulting in her sinking. Only two of the 38 men aboard the vessel survived the sinking to be captured by the Germans.

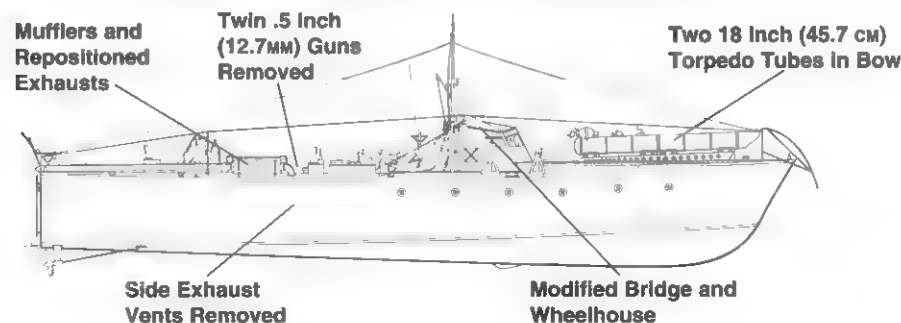
The explosives carried by CAMPBELLTOWN detonated on the morning of 28 March, severely damaging the drydock. This denied Germany a drydock large enough to shelter the battleship TIRPITZ, which was a major threat to British shipping. This commando raid resulted in Germany's major surface warships withdrawing to home waters for the remainder of World War II.

Vosper 1940 MTB



Side Mounted 21 Inch (53.3 cm) Torpedo Tubes

MTB-74 Modified for St. Nazaire Raid



Mufflers and Repositioned Exhausts

Twin .5 Inch (12.7mm) Guns Removed

Two 18 Inch (45.7 cm) Torpedo Tubes in Bow

Side Exhaust Vents Removed

Modified Bridge and Wheelhouse

1941 Vosper MTBs

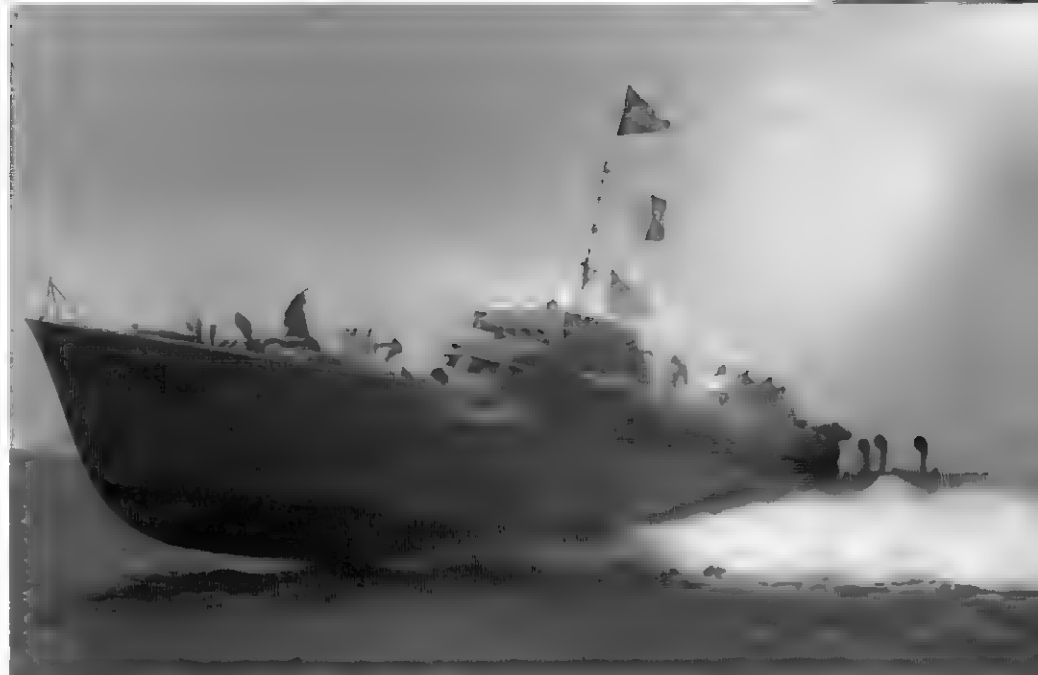
The Admiralty ordered 20 torpedo boats (MTBs 222 to 241) from Vosper on 22 February 1941. The majority of these would be built by other British shipyards with Vosper supervising their construction. Vosper built MTBs 242 to 245 to replace four earlier vessels destroyed while under construction. The J. Samuel White firm in Cowes were contracted to build 12 more Vosper boats (MTBs 246 to 257).

The British government contracted with shipyards in the United States to build Vosper-designed MTBs under Lend-Lease. American shipyards built 58 Vosper vessels in 1941, with the first set of 32 boats designated MTBs 275 through 306. The US shipyards which produced Vosper MTBs were: Annapolis Yacht Yard, Annapolis, Maryland; Robert Jacobs, Inc., City Island, New York; and Herreshoff Manufacturing Company, Bristol, Rhode Island.

The 1941 Vosper MTBs were 72.5 feet (22.1 m) long with a beam (width) of 19.25 feet (5.9 m). The forward draft was two feet (0.6 m) while the stern draft was 6.25 feet (1.9 m). Three 1350 brake horsepower (bhp) Packard supercharged engines powered the 1941 Vosper MTBs to a maximum speed of 39.5 knots (73.2 kmh). The vessels had a cruising speed of 35 knots (64.9 kmh) at 2200 rpm.

The primary armament of two 21-inch (53.3cm) torpedo tubes remained the same as for previous Vosper MTBs. The American-built boats were equipped with twin .5 inch (12.7mm) Vickers machine guns in Canadian-built Mark V power operated turrets. The crew complement of the 1941 MTBs was increased from 12 personnel on 1940 boats to 13 (2 officers and 11 enlisted men). Most American-built Vosper MTBs served in the Mediterranean Sea and the Indian Ocean during World War II.

MTB-290 cruises off the Rhode Island coast during pre-acceptance trials in April of 1943. Herreshoff built eight 1941 contract Vosper MTBs, with MTB-290 and three other vessels going to the Royal Navy for service in the Mediterranean Sea. (HMM via Thomas Brightman)



The license-built Vosper 1941 contract boat MTB-294 flies the US flag while on manufacturer's trials in the summer of 1943. Herreshoff Manufacturing of Bristol, Rhode Island built this vessel for the Royal Indian Navy, which deployed MTB-294 in the Indian Ocean. Vosper's 1941 contract boats could reach a top speed of 39.5 knots (73.2 kmh). (HMM via Thomas Brightman)

MTB-299 was one of four Herreshoff-built MTBs delivered to the Royal Indian Navy in 1943. The pennant number on the bow was believed to be medium gray with black shadows. The presence of two US Navy officers on the bridge indicates MTB-299 has not yet been delivered to India. (National Archives)



1942 Vosper MTBs

The British Admiralty ordered 16 Vosper torpedo boats (MTBs 347 to 362) on 17 April 1942. These vessels used the same basic hull design employed by the 1940 and 1941 Vosper boats; however, internal crew and equipment spaces were rearranged to lessen crowding. The 1942 Vosper MTBs were 70 feet (21.3 m) long with a forward draft of 2.75 feet (0.8 m) and a stern draft of 5.5 feet (1.7 m). The vessels displaced 44.75 tons (40.6 MT) at full war load. Power from three 1350 bhp Packard supercharged engines enabled these boats to reach a top speed of 39.5 knots (73.2 kmh) at 2400 rpm. The engine room of these boats received a Dumbflow silencer system and one electrical generator as standard equipment.

The 1942 Vosper boats were armed with two 21-inch (53.3 cm) torpedo tubes mounted astride the bridge and two .5 inch (12.7mm) Vickers machine guns in a Mark V power-operated turret amidships. The .5 inch guns were later replaced on some boats with one 20mm Oerlikon cannon. The vessels' depth charge load was reduced from four to two in order to save weight. These boats carried the depth charges amidships, rather than at the stern as on previous Vosper MTBs. The depth charges could be released from the bridge by an electrical switch to the depth charge racks. A 12-man crew – 2 officers and 10 enlisted men – manned the 1942 Vosper MTBs.

Deck fittings were simplified and reduced to save boat weight and reduce deck clutter. Engine compartment ventilation was improved by the installation of a single 12-inch (30.5 cm) cowl ventilator amidships, over the engine room. The 1942 boats were conned from the bridge only, unlike previous Vosper MTB designs in which the vessel could also be commanded from

Scrape, paint, and polish; and if it moves – salute it! Sailors perform maintenance on MTB-356's hull and port torpedo tube while the boat was raised on a cradle at Felixstowe, England in 1943. The 1942 contract vessel's chine was an external brace running parallel to the keel. MTB-356 was scuttled after receiving battle damage off the Netherlands on 16 October 1943. (Vosper Thornycroft (UK) Ltd via John Lambert)

the wheelhouse. The former wheelhouse was now called the chartroom. A Type 286 radar with trainable antenna and an integral IFF (Identification Friend or Foe) system was mounted on the starboard side of the bridge. An emergency tiller for steering was stowed on the deck below the portside torpedo tube. This tiller could be mated to the two stern rudders through a pipe fitting arrangement should the bridge's steering mechanism be damaged.

Three of the 16 MTBs ordered in 1942 were built by Vosper in Portsmouth and four others at Vosper's Wivenhoe Yard in England. Harland & Wolff of Belfast, Northern Ireland built six MTBs and Morgan Giles constructed three others in Teignmouth, England.

The British Admiralty ordered an additional 16 Vosper-designed boats (MTBs 363 to 378) from Annapolis Yacht Yard in Maryland on 22 July 1942. These boats were built between August of 1942 and December of 1943. The first eight boats of this order were delivered to the Soviet Navy in February of 1944, with the remainder going to Britain. One Soviet Vosper was lost in action in 1944, while the remainder were returned to the US Navy in 1954 and 1955. The British vessels served in the Mediterranean Sea during 1944 and 1945.

The Royal Navy also decided in 1942 to use a common hull combining the functions of Motor Torpedo Boats (MTBs) and Motor Gunboats (MGBs). Vosper designed a short-hulled MTB designated MTB-379 to test this concept. The keel for MTB-379 was laid down in late 1943 and this boat served as the prototype for the late war Vosper MTBs.

The crew of US-built MTB-378 man their action stations (USN = battle stations), including the 20mm Oerlikon guns mounted on the foredeck and amidships. Vosper MTBs built in American yards did not have the portholes along the side of the hull found on British-made boats. Crew compliment for the 1942 contract Vosper MTBs consisted of two officers and 10 enlisted men. (Vosper Thornycroft (UK) Ltd. via John Lambert)

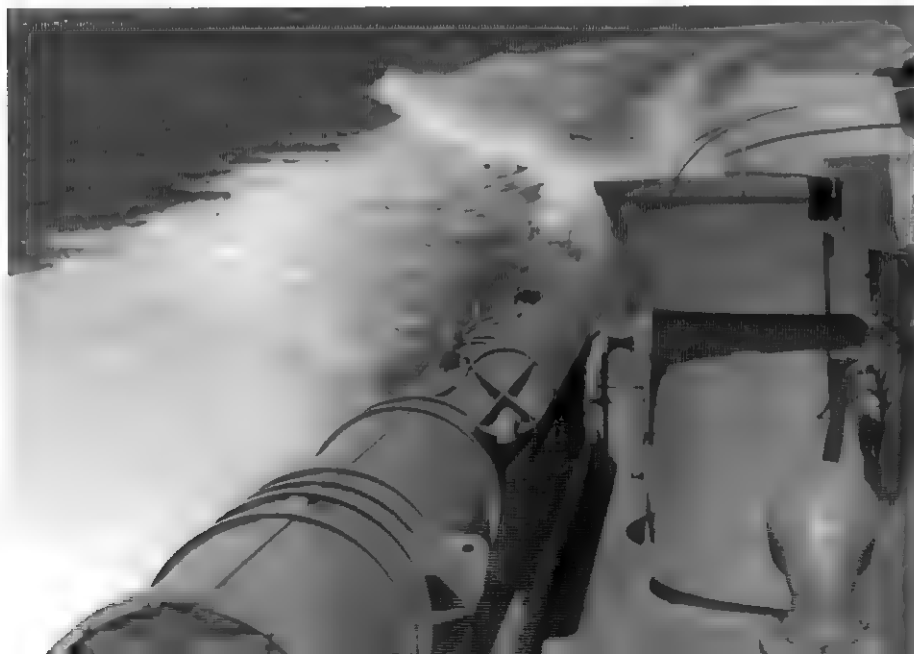




(Below) The starboard 21-inch torpedo tube of this Herreshoff-built Vosper MTB is equipped with a compressed air cylinder atop the tube's aft section. This type of torpedo tube was fitted to the 20 vessels Herreshoff supplied to the Soviet Navy in 1944. The tub mounted beside the charthouse housed a .5 inch machine gun. This MTB turns to port during trials on Narragansett Sound, Rhode Island. (HMM via Thomas Brightman)

(Above) MTB patrols often approached their targets in line-ahead formation, unlike these five Annapolis Yacht Yard-built vessels. The far left boat's pennant number is unknown; however, the other four boats are (L-R): MTBs 372, 365, 377, and 376. These boats wore a white and light gray camouflage scheme on the upper hulls for reduced visibility during night operations. (PT Boaters, Inc.)

(Below) The .5 inch (12.7mm) machine gun turrets mounted on this vessel were similar to those installed on American PT boats. Some ventilators could be turned 360° depending on the amount of sea spray coming over the deck and ventilation required below. This Herreshoff-built Vosper boat, destined for the Soviet Navy, conducted manufacturer's trials off the Rhode Island coast in 1944. (HMM via Thomas Brightman)





(Above Left) The two wing 1350 bhp Packard 4M-2500 engines powering 1942 contract Vosper MTBs were installed in the front of the engine room. The center engine was set aft. Engine instruments were mounted above the port engine and the watchkeeper's desk was mounted on the same powerplant. The ladder in the middle of the engine room led to the top deck. (Vosper Thornycroft (UK) Ltd via John Lambert)

(Above) MTB-376 skims the waves while reaching her top speed of 39.5 knots (73.2 kmh). The forward hull below the waterline was painted in the same light gray as the hull sides, while the remainder of the lower hull was black. This vessel's hull camouflage was painted with a soft edge. MTB-376 served with the Royal Navy in the Mediterranean from the end of 1943 until returned to the US in October of 1945. (Herreshoff Maritime Museum)

(Left) American-built MTB-375, wearing a white and light gray paint scheme, is docked in an Italian port during the latter half of World War II. The forward 20mm Oerlikon gun was missing the gun shield usually fitted to protect the gunner. The amidships twin .5 inch Vickers machine gun was covered with a canvas sheet. This vessel did not have the large exhaust port on the aft hull. (PT Boaters, Inc.)

MTB-510

MTB-510 was Vosper's only long hulled torpedo boat design and was built to test the Synchro-Self-Shift (SSS) two-speed gearbox. The SSS gearbox was designed to improve the performance of the 115-foot (35.1 m) long Fairmile D type torpedo boats. The Royal Navy ordered MTB-510 from Vosper on 2 April 1942 and received the boat from the manufacturer on 14 August 1943. Although armed, MTB-510 never saw operational service and remained an engineering testbed for various gearbox, engine, and propeller combinations for MTBs and Motor Gunboats (MGBs) until she was sold for disposal in September of 1947.

MTB-510 was 100.5 feet (30.6 m) long and had a beam of 19 feet (5.8 m). She displaced 75 tons (68 MT) and had an aft draught of 5.5 feet (1.7 m). The combined 6000 bhp of four Packard W14 gasoline engines drove the boat to a maximum speed of 36.5 knots (67.6 kmh). The liquid-cooled, 1500 bhp, supercharged W14 was a 12-cylinder V-type engine modified from the Packard 4M used on earlier MTBs.

Two experimental SSS gearboxes were installed on MTB-510 and each gearbox was coupled to two of the boat's four 1500 bhp Packard W14 engines. The SSS gearboxes under the aft two engines served as reducing gears and allowed opposite rotation of the propellers to reduce torque although the propelling engines were of equal rotation. These gearboxes also had a two gear ratio, which offered less gear teeth stress than gearboxes with higher gear ratios. The Synchro-Self-Shift ratios allowed the crew to run two of the four engines in high gear and the other two engines on low gear. Power from the Packard W14 engines passed through hydraulic couplings into the SSS gearboxes and then to the propeller shafts. Oil for the hydraulic couplings was supplied from a storage tank located under the engine room gangway. This vessel used two propeller shafts for lower weight and less drag than a four-shaft configuration.

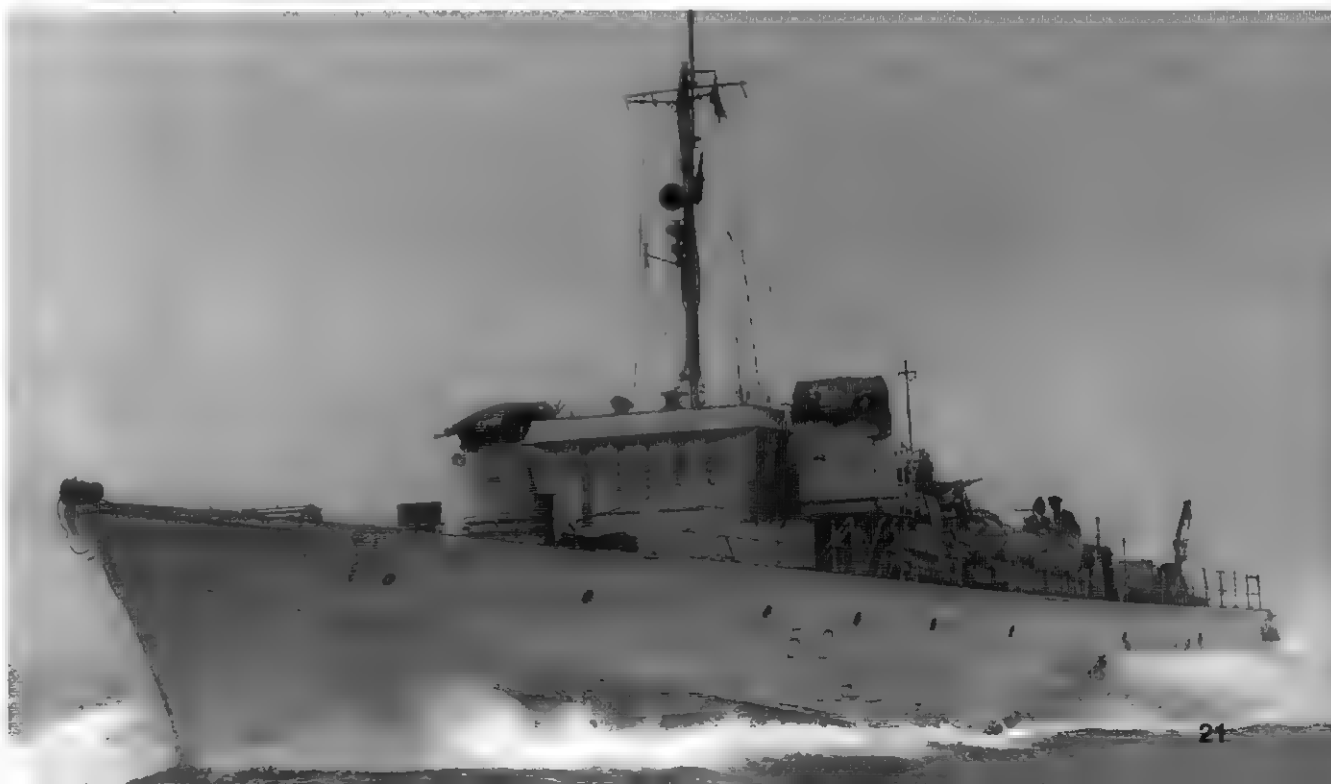
MTB-510 was also equipped with two Mawdsley auxiliary engines fitted to the forward section of the engine room. These powerplants could generate 20 volts, 57 amps, and 12.5 kilowatts. The engine room included a center gangway and two engine control panels on either side. Methol Bromide fire extinguishers were located on the forward engine room bulkheads and could be activated in the engine room or from the bridge.

Vosper's one-off long-hull boat MTB-510 did not see operational service; however, she served to test the Synchro-Self-Shift (SSS) gearbox developed for Fairmile D Motor Torpedo Boats. MTB-510 was armed to test various weapons fits and for self-defense against attacks from enemy surface vessels and aircraft. Although her foredeck mount is empty, she was equipped with either a 2-pounder (40mm) or 6-pounder (57mm) gun at various times in her career. A spray strip running down the forward hull reduced spray to the upper hull. Steam flowed out of MTB-510's engine exhaust ports as she cruised in British home waters. (Vosper Thornycroft (UK) Ltd via John Lambert)

The boat had a fuel capacity of 5400 gallons (20,441.2 l) of gasoline, which was carried in ten fuel tanks placed forward and aft of the engine room. The six forward tanks consisted of two center tanks of 900 gallons (3046.9 l) each and four outer tanks of 500 gallons (1892.7 l) each. The four aft tanks each had a capacity of 400 gallons (1514.2 l). The forward tanks were produced from copper, while the aft tanks were made from aluminum. All ten fuel tanks were covered with Linatex, a self-sealing rubberized substance used to reduce the risk of leaks, fires, or explosions due to battle damage. These tanks could only be filled to 90% of their capacity due to the risk of structural damage if filled to full capacity. Any of MTB-510's four engines could run off of any tank by crewmen opening the desired fuel tank's cock and closing the cocks of the unused tanks. Plunger-type fuel primer pumps were installed on this vessel in place of the diaphragm type pumps usually fitted on Vosper boats.

Forward gasoline tank fills were located in the engine room gangway below the bilge boards near the forward bulkhead. The aft tank fills were placed on the rear bulkhead, near the bilge boards. Each engine had its own oil tank, which was supplemented by a reserve oil tank located in the port wing of the room. A rotary pump was installed to transfer oil from the reserve tank to MTB-510's engines. Each engine had a tank of distilled cooling water, which was supplemented by a reserve water tank in the starboard engine room wing. This reserve tank supplied distilled cooling water to the engines through semi-rotary pumps on each engine.

This vessel was armed with two 18-inch (45.7 cm) torpedo tubes flanking the amidships superstructure and one 2-pounder (40mm) Vickers gun in a powered turret forward of the bridge on the foredeck. A 6-pounder (57mm) QF Mark IIA gun in a Mark VII mount replaced the 2-pounder gun in the spring of 1945. Close-in defense for MTB-510 was provided by two twin .5 inch (12.7mm) Vickers machine guns flanking the bridge and one twin 20mm Oerlikon





cannon placed amidships behind the radio cabin. Two depth charge racks – one per side – were installed on the aft deck to roll depth charges over the sides. A Holman projector Mark IIA, which launched 36M 'Mills Bomb' grenades at low-flying aircraft, was mounted on the stern. The Holman projector was removed in the spring of 1945 due to its ineffectiveness. A chemical smoke apparatus was also fitted to the stern to create smokescreens. MTB-510's crew complement consisted of 20 men.

(Left) MTB-510's four 1500 hp Packard W14 engines were installed in two side-by-side pairs in the engine room separated by a gangway. The Synchro-Self-Shift (SSS) gearboxes tested by this vessel were placed between each pair of engines. Only two propeller shafts were installed on MTB-510 to save weight – one or two engines could drive each shaft. (Vosper Thornycroft (UK) Ltd via John Lambert)

(Below) Canvas covers were placed over MTB-510's midships twin 20mm Oerlikon guns and the two twin .5 inch Vickers machine guns flanking the bridge. Two 18-inch torpedo tubes were mounted abreast the superstructure, while a turret-mounted 6-pounder (57mm) gun was installed on the foredeck. MTB-510's hull displayed the wear of extended trials at sea. She performed propulsion engineering testing from August of 1943 until sold for disposal in September of 1947. (Vosper Thornycroft (UK) Ltd via John Lambert)



1943-1945 Vosper MTBs

MTB-379 was completed at Portchester, England on 22 January 1944. She was a flush decked design, similar to American Patrol Torpedo (PT) boats; however, this boat retained the classic lines of earlier Vosper vessels. MTB-379 also featured a new bridge design, which included the mast carrying the radar and IFF antennas located on the port side near the rear of the bridge. Below decks access was available through the main companionway located on the port side of the bridge and a watertight hatchway on the foredeck in front of the 20MM Oerlikon cannon mount. Another hatchway was installed on the aft deck over the engine room. The 1943 and 1944 contract boats were known as Vosper Type I vessels.

Vosper Chairman Peter Du Cane personally oversaw the design work on this class and based this design largely from feedback provided by officers returning from frontline action. The 1943 MTBs were 73 feet (22.3 m) long and displaced 46.7 tons (42.4 MT) when fully loaded. Power for these vessels came from three 1400 bhp Packard marine engines, with the center engine driving the propeller shaft through a reduction gear and the two outboard engines were connected by direct drive to the propeller shafts. The 1943 MTBs could achieve a maximum speed of 39.9 knots (73.9 kmh) at 2400 rpm and a cruising speed of 34 knots (63 kmh) at 2000 rpm. The engines were supplied with 2510 gallons (9501.4 L) of gasoline stored in three self-sealing tanks to reduce the risk of explosion from enemy fire. The center main fuel tank contained 1114 gallons (4216.9 L), while the two wing tanks each held 698 gallons (2642.2 L). The Type I MTBs had a maximum operating range of 470 miles (756.4 km) at 20 knots (37.1 kmh). Crew compliment for these vessels consisted of 2 officers and 11 enlisted personnel.

The hulls of the late war Vosper MTBs continued the use of double mahogany skins, while bonded sheets of plywood replaced mahogany for the upper deck to save building time. Earlier boats mounted the rudders on the transom; however, these new Vosper vessels installed the three rudders under the hulls. Cavitation plates were not installed on the new boats, unlike previous MTB classes. Most torpedo boats had these plates mounted at the stern directly above the rudders to reduce propeller cavitation, or slip, which degraded rudder performance.

The 1943 Vosper MTBs replaced the two 21-inch (53.3 cm) torpedoes of earlier Vosper designs with four 18-inch (45.7 cm) torpedoes. The torpedo tubes mounted on MTB-379 were angled out 15° from the centerline. The 16 subsequent production boats (MTBs 380 to 395) angled out the torpedo tubes at 15.5°. Unlike earlier Vosper MTB designs, no torpedo troughs were built into the hull; instead, a sponson was built out from the gunwale under the front of the after torpedo tube. In addition to the four 18-inch (45.7 cm) torpedo tubes, the Type I MTBs were armed with a twin 20MM Oerlikon cannon on a manually operated Mark IX Bandstand mounting on the foredeck. The boats were also armed with two single 2-inch (5.1 cm) rocket flare projectors mounted on the forward torpedo tubes and two twin .303 caliber (7.7mm) Vickers machine guns on pedestal mounts on the aft torpedo tubes.

MTB-380 accompanies two other Vosper 1943 contract vessels on a patrol. These boats were armed with four 18-inch (45.7 cm) torpedo tubes, a twin 20MM Oerlikon gun on the foredeck, and twin .303 caliber (7.7mm) Vickers machine guns mounted on the after torpedo tubes. A rocket flare projector was fitted atop each of the forward torpedo tubes. (Vosper Thornycroft (UK) Ltd via John Lambert)





Below decks improvements over previous Vosper designs included an all-electric galley and an electric radiator for the mess deck. A receptacle was mounted on the upper deck to supply power to the galley while the boat was at dockside. The wheelhouse was armored and an emergency steering station was located at the rear of the wheelhouse. Type I MTBs were equipped with three radar sets and state of the art radios.

The new MTBs were equipped with telephones for intra-ship communications, replacing the voice tubes used on earlier boats. The vessels were also equipped with a hydrophone for detecting moving submarines; however, the MTB needed to be stopped in order for the hydrophone to work successfully. A new chemical smoke apparatus was fitted to the port aft section of the boat to generate smokescreens using Chlor-Sulphonic Acid (CSA).

The MTBs ordered in 1945 featured a number of improvements over the 1943-44 Type I boats. New watertight deck ventilators were installed on the forecastle. A new Type 286U radar was installed and a radar office was located amidships. The mast was repositioned amidships on the bridge. Improved and redesigned instruments were fitted on the bridge and a radio room was placed on the starboard side of the boat. Two additional 40 gallon (151.4 L) fuel tanks were placed below decks at the stern.

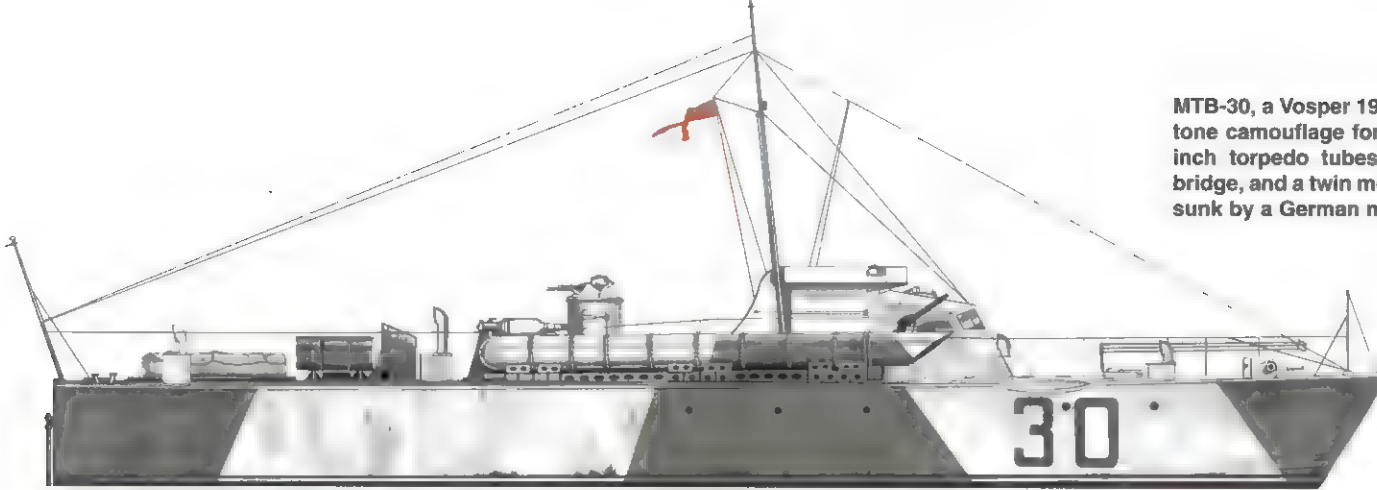
These 1945 MTBs were called Vosper Type II 73-footers and their armament package was changed from that of the Type I boats. The forward twin 20MM Oerlikon gun was moved aft amidships and a 6-pounder (57MM) quick firing (QF) Mark IIA gun was installed on the foredeck. By 1945, the lack of torpedo-worthy targets resulted in the retention of only the two aft 18-inch (45.7 cm) torpedo tubes.

The Type II boats displaced 49 tons (44.5 MT) and were powered by the same three Packard engines as the Type I vessels. Maximum speed of the Type II MTB was 40 knots (74.1 kmh) at 2400 rpm, while the cruising speed was 38 knots (70.4 kmh) at 2000 rpm. Range was increased to 480 miles (772.5 km) at 20 knots (37.1 kmh) – 10 miles (16.1 km) more than the Type I.

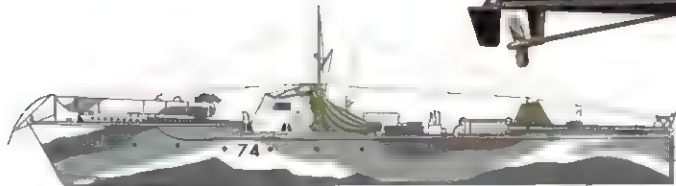
Orders were placed for 15 Type II MTBs in 1945; however, none were completed before the end of World War II. Two boats, completed after hostilities had ended in Europe, were converted to Fast Target Tow Boats. These boats were stripped of their armament and equipped with a stern-mounted, gasoline-powered winch.

Vosper's 1943 contract torpedo boats could reach a top speed of 39.9 knots (73.9 kmh). The forward twin 20MM Oerlikon gun and the front of the two starboard torpedo tubes were covered in canvas. The forward Mark IX 20MM twin mount base was known as the bandstand. A railing surrounding this weapon's position prevented the gunner from falling overboard while maneuvering the gun. Wear on the hull's two-tone paint scheme resulted from sustained operations at sea. MTB-380 was the first of 16 Type I boats ordered from Vosper on 10 March 1943. She was delivered to the Royal Navy on 12 May 1944 and disposed of in June of 1946. (Vosper Thornycroft (UK) Ltd via John Lambert)

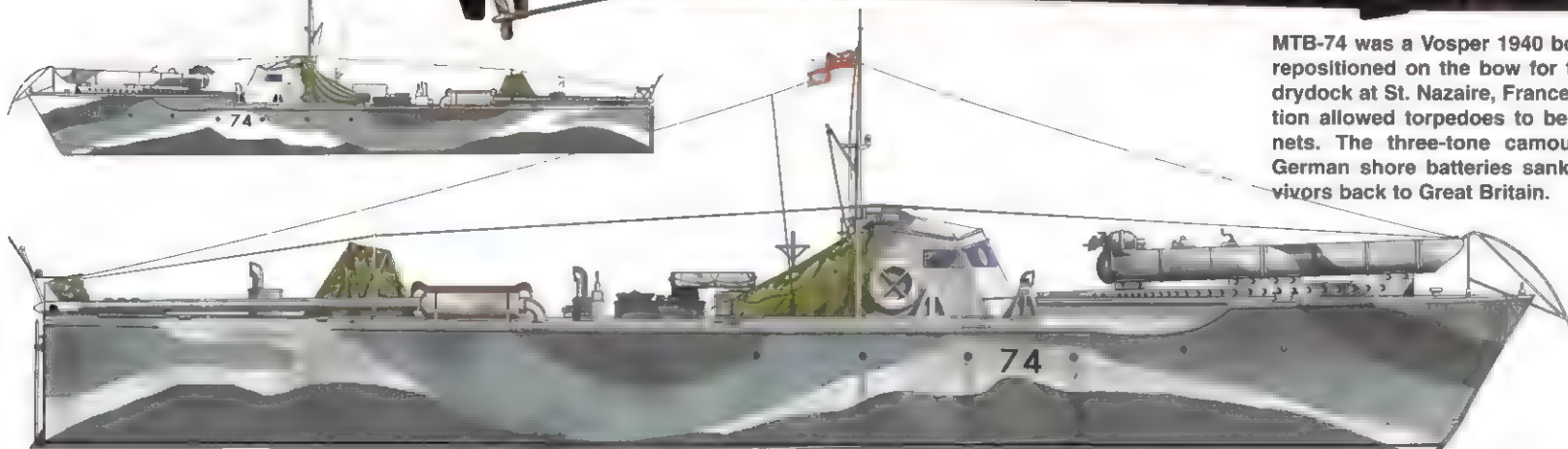
MTB-30, a Vosper 1938-39 Motor Torpedo Boat design, was painted in a two-tone camouflage for North Sea operations. The boat is armed with two 21-inch torpedo tubes, two .303 caliber Lewis machine guns flanking the bridge, and a twin mount .5 caliber Vickers machine gun amidships. She was sunk by a German mine in the North Sea on 18 December 1942.

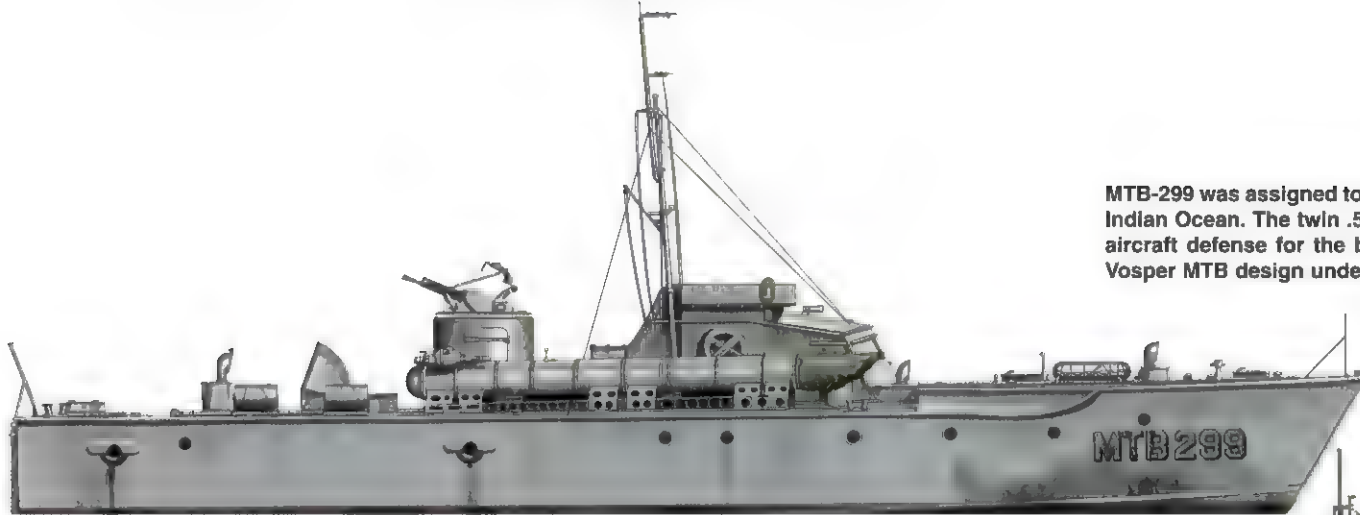


MTB-73 was the first Vosper 1940 MTB powered by American-built Packard engines. This vessel wears the Red Ensign during manufacturer's trials prior to acceptance by the Royal Navy. The small rudder mounted on the centerline of the hull assisted in decreasing the boat's turning radius. She was bombed and sunk by German aircraft off Maddalena, Sardinia on 24 November 1943.



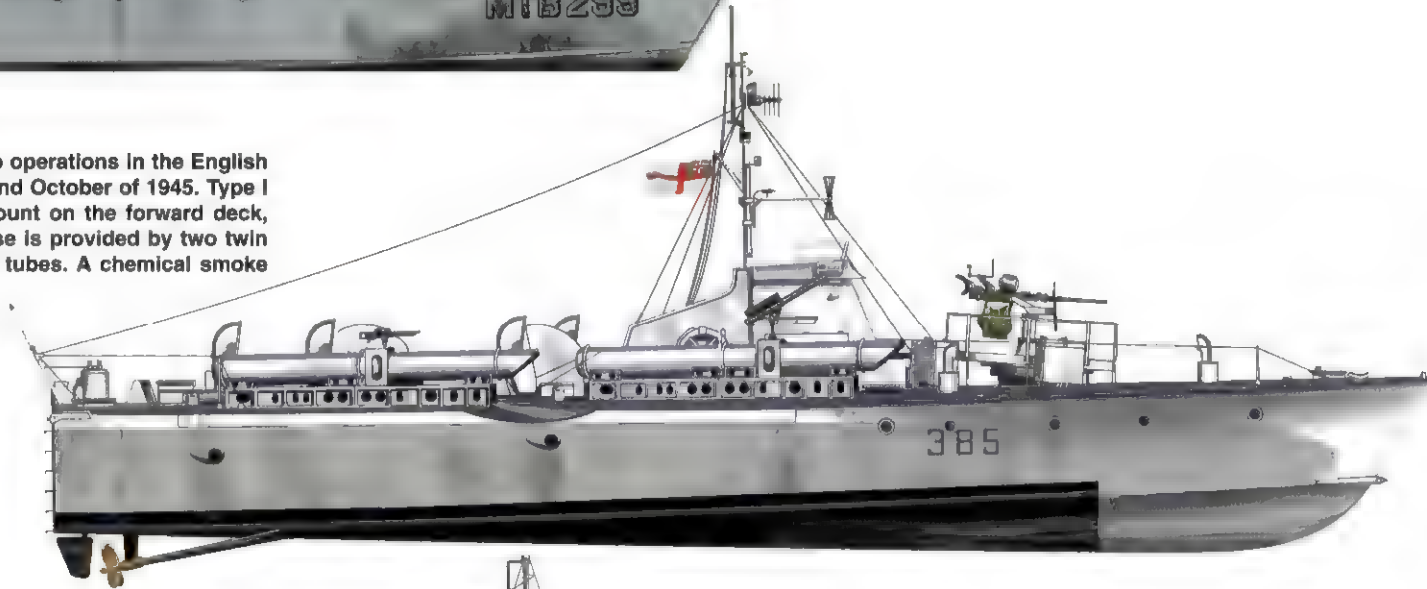
MTB-74 was a Vosper 1940 boat with her 18-inch torpedo tubes repositioned on the bow for the British commando raid on the drydock at St. Nazaire, France on 28 March 1942. This tube position allowed torpedoes to be launched above German torpedo nets. The three-tone camouflage scheme was symmetrical. German shore batteries sank MTB-74 while she took raid survivors back to Great Britain.



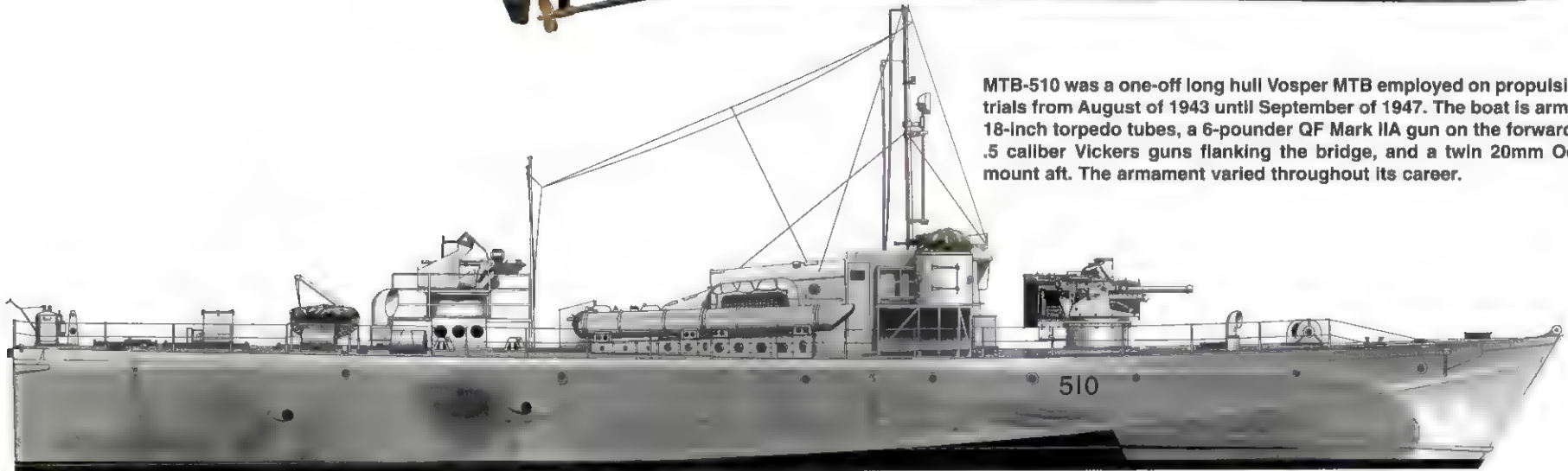


MTB-299 was assigned to the Royal Indian Navy in March of 1943 for operations in the Indian Ocean. The twin .5 caliber Vickers machine guns on the aft deck provide anti-aircraft defense for the boat. The Robert Jacobs company manufactured this 1941 Vosper MTB design under license in the United States.

MTB-385 was a Vosper 1943-45 Type I MTB assigned to operations in the English Channel and the North Sea between October of 1944 and October of 1945. Type I boats were armed with a twin 20mm Oerlikon gun mount on the forward deck, along with four 18-inch torpedo tubes. Close-in defense is provided by two twin .303 caliber Vickers machine guns on the aft torpedo tubes. A chemical smoke apparatus is mounted at the stern, offset to port.



MTB-510 was a one-off long hull Vosper MTB employed on propulsion systems trials from August of 1943 until September of 1947. The boat is armed with two 18-inch torpedo tubes, a 6-pounder QF Mark IIA gun on the forward deck, twin .5 caliber Vickers guns flanking the bridge, and a twin 20mm Oerlikon gun mount aft. The armament varied throughout its career.





(Above) A clear windshield placed on the bridge of the Type I vessel MTB-385 provided some protection from the elements. Across the bridge were (L-R): steering compass, engine throttles, engine telegraphs, torpedo firing levers, and revolution indicator box. Boost gauges were fitted immediately above the revolution indicator box. Two voice pipes for intra-boat communication were mounted on the starboard wall. (Vosper Thornycroft (UK) Ltd via John Lambert)

(Above Right) The crew quarters located in MTB-385's bow featured four hinge-down cots – two per side. A folding table between these cots could be extended for meals and writing. The pillars supporting the top deck were two inches (5.1 cm) in diameter. An electric fan for cooling the air was mounted on the forward bulkhead. (Vosper Thornycroft (UK) Ltd via John Lambert)

(Right) The Type I vessels were armed with a single 20mm Oerlikon gun mounted on the foredeck. This weapon was moved to the aft deck and a 6-pounder (57mm) gun fitted to the foredeck of Type II MTBs. A two-inch (5.1 cm) flare projector was mounted on the forward torpedo tube, and a twin .303 caliber machine gun (covered in canvas) was placed on the aft tube. MTB-391 was delivered to the Royal Navy on 15 July 1944 and removed from service in September of 1947. (Vosper Thornycroft (UK) Ltd via John Lambert)



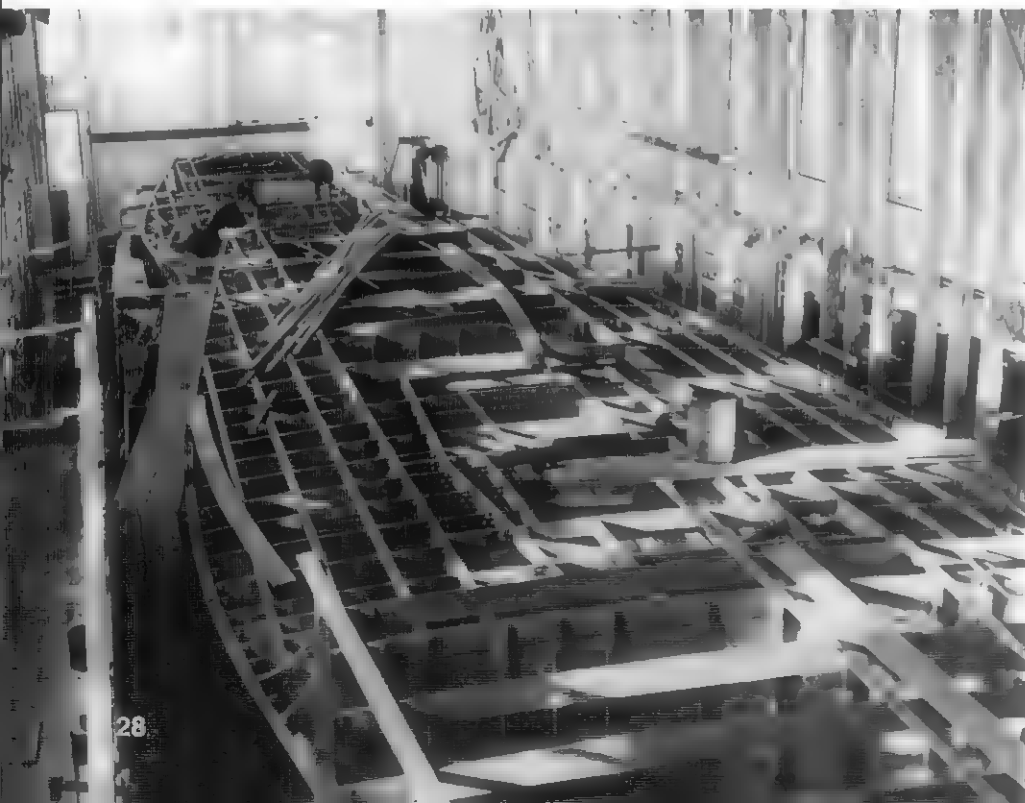
Construction

The shape of Motor Torpedo Boat (MTB) hulls evolved during World War II based on Vosper's construction experience since the late 1930s and tank testing of hull models. These vessels normally used double diagonal wood hulls similar to those on contemporary American Patrol Torpedo (PT) boats. The primary wood used was mahogany, which ship builders have long used due to its strength and decay-resistant properties after prolonged immersion into water. All steel items on the boat were sprayed with zinc to protect against corrosion.

The hulls of Vosper MTBs used wooden girder frameworks with metal engine bearers fitted in the engine room. The hull girders were glued except at the frame brackets, where the girders were bolted. Bulkhead stiffeners were alternately secured with copper clench nails and brass woodworking screws. The hull was divided into five separate watertight compartments to house crew and equipment spaces, fuel tanks, and the engine room.

The 67 hull frames consisted of even-numbered main frames and odd-numbered intermediate frames. The exception to this rule was frame 48, an intermediate frame located at the forward edge of the engine room. The vessel's center of gravity was at frame 30, beneath the wheelhouse. Bottom frames were built with 1.125 inch (2.9 cm) thick mahogany, while the mahogany engine room frames were 1.25 inches (3.2 cm) thick. Side frames other than in the engine room were made of one-inch (2.5 cm) thick mahogany.

Workers install longitudinal girders on one of two Vosper MTBs under construction at Herreshoff Manufacturing Co. in Bristol, Rhode Island in February of 1942. The girders were secured to the frames with bolts and served to support the top deck. Mahogany was the primary material used to build Vosper torpedo boats. (HMM via Thomas Brightman)



The six-inch (15.2 cm) wide stem (the foremost part of the vessel) was built from mahogany and was placed above the brackets for the chine. The boat's chine was the extreme side member running approximately parallel to the keel. The chine brackets attaching the chine to the hull varied in thickness up to eight inches (20.3 cm) and were banded together to the stem.

Double diagonal mahogany was used for the topside planking, with the inner skin set at 65° diagonal and the outer planking placed at 45° diagonal. The hull bottom was built with triple skinned mahogany. The outer skin was laid 'fore and aft' and the two inner hull bottom skins were laid on opposite diagonals. Oiled calico (in the UK, a plain white cotton cloth) was placed in between the layers of topside and bottom skinning.

The decks were planked with double diagonal mahogany, with the interior skin laid at 45° diagonal and the outer skin laid down 'fore and aft.' Oiled calico was placed between the deck skins to add strength and watertight integrity to the wooden structure. The caulking compound Seamflex was used to fill any skin gaps. The wheelhouse cockpit was built using three-ply .375 inch (.95 cm) thick waterproofed mahogany. Two-inch (5.1 cm) diameter pillars attached to the bottom hull frames supported the weight of the deck.

The diamond-shaped foredeck characteristic of early Vosper designs resulted from the development torpedo trials in 1938. The boat's torpedo tubes were angled out during these trials and the foredeck hull was pared away to allow torpedoes to be launched without hitting the hull.

Herreshoff workers install hull frames on four Vosper MTBs under construction at the company's Bristol yard in 1944. The 70-foot (21.3 m) long torpedo boats were built with 67 frames, which were numbered from bow to stern. The bottom frames were made from 1.125 inch (2.9 cm) thick mahogany, while the side frames ranged from 1 to 1.25 inches (2.5 to 3.2 cm) thick. (HMM via Thomas Brightman)





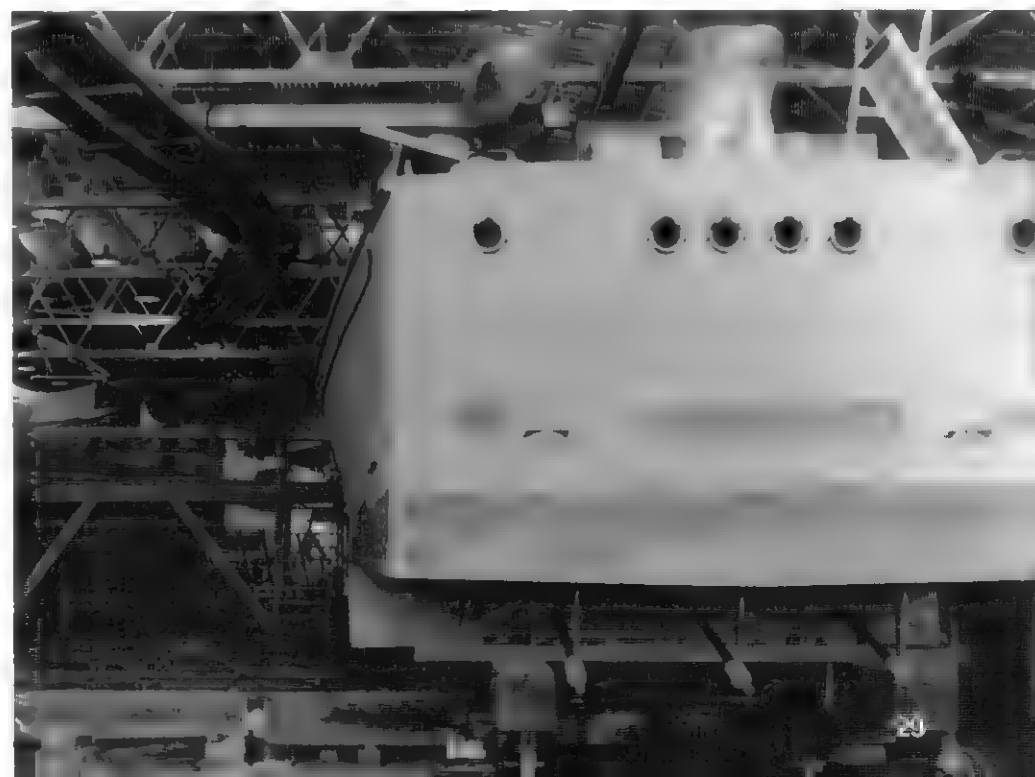
(Above) Bolts secure hull frames to longitudinal girders on the bow of an MTB under construction in February of 1942. Wood beams hold the hull upright while the boat is being built. The chine running along the side of the hull was attached to the hull with brackets up to eight inches (20.3 cm) wide. The mahogany frames were an underlying reason for the strength of Vosper MTB designs, which enabled these vessels to take damage from combat and the elements and continue to fight. (HMM via Thomas Brightman)

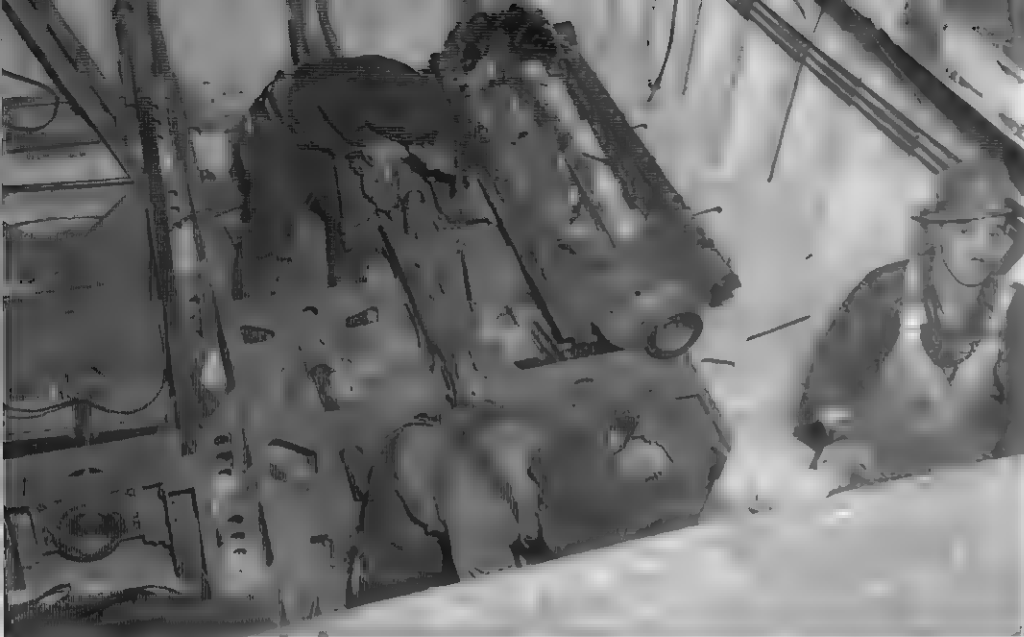
(Above Right) Workers at Vosper's Portsmouth assembly line attend to six MTBs in various stages of construction. Upper deck planking consisting of double diagonal mahogany has been fitted to all but the nearest vessel. Double diagonal mahogany side planking was installed earlier in the process. Openings for the engine rooms are in the aft section of the hulls. Copper clench nails and brass woodworking screws were used on an alternating basis to secure bulkhead stiffeners. (Vosper Thornycroft (UK) Ltd via John Lambert)

The foredeck shape used on the 1943 to 1945 MTBs did away with the torpedo troughs.

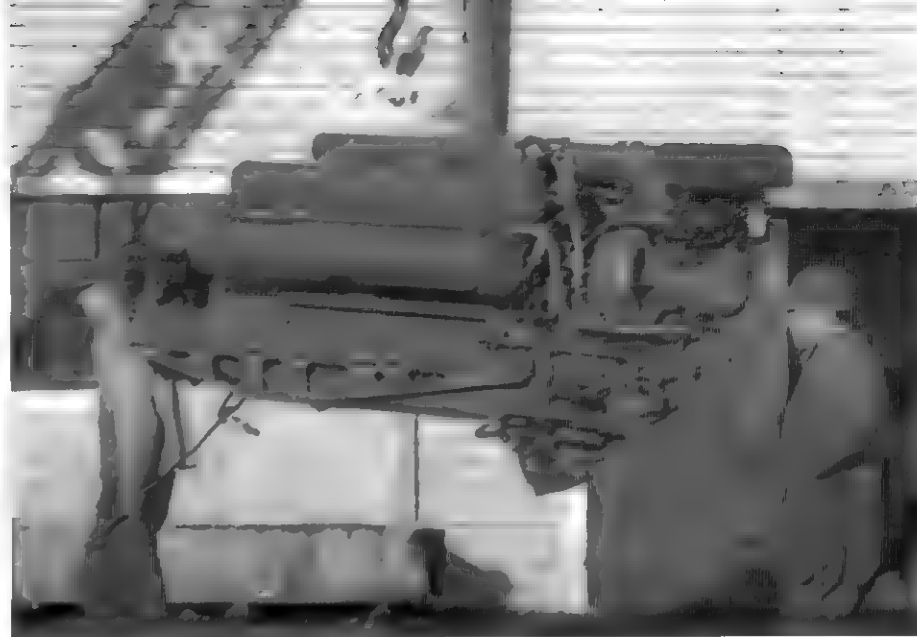
A bollard chock – used to secure the towing bollard to the boat – was located near the rear of the upper deck break and was built from 1.5-inch (3.8 cm) oak with a .125 inch (.3 cm) mild steel plate underneath. The chock was flanged 1.5 inches (3.8 cm) all around and secured to the gunwale and beams. The forward towing bollard was attached to the first watertight compartment.

(Right) Propeller shafts have been installed on a nearly complete Vosper-designed MTB at the Herreshoff yard in Bristol, Rhode Island. The two loops placed on the transom are brackets for the boat's two rudders. The six holes on the boat's transom are exhaust pipes, which carried exhausts from the three engines through mufflers mounted inside the stern. Rail-mounted cradles allowed the vessel to be rolled to the water's edge for launching. (HMM via Thomas Brightman)





Herreshoff workers install engine beds into a license-built Vosper MTB destined for the Soviet Navy on 12 November 1943. Metal engine bearers were installed on the wooden hull frames to accept the boat's three Packard 4M-2500 marine engines and transmission systems. (HMM via Thomas Brightman)



A Packard 4M-2500 engine is hoisted for installation into a Vosper-designed MTB bound for the USSR in 1943. The 12-cylinder, supercharged engine was the powerplant of choice for Allied torpedo boat fleets in World War II. (HMM via Thomas Brightman)

A Packard engine is installed in a license-built Vosper MTB at the Herreshoff yard in Bristol, Rhode Island. This engine was placed in the center position in the aft part of the engine room. Propellers have not yet been fitted to this boat. (HMM via Thomas Brightman)

Workers complete work on the hulls of Vosper-designed PTs 430 and 431 in November of 1943. During World War II US-made boats received temporary PT designations until transferred to another navy. These two vessels were delivered to the Soviet Navy under the Lend-Lease program. (HMM via Thomas Brightman)



Engines

Prior to World War II, the only British-made marine engine available for Motor Torpedo Boats (MTBs) was the 650 horsepower (hp) Thornycroft RY.12. This engine provided insufficient power for the new MTBs. Consequently, the British decided to import the Italian 1150 hp Isotta-Fraschini Asso 1000 engine to power these vessels. This 18-cylinder V-type powerplant weighed 3020.3 pounds (1370 kg) and used 80 to 87-octane gasoline. The Asso 1000 also powered Italy's M.A.S. (*Motoscafo Anti Sommergibile*; Anti-Submarine Motorboat) torpedo boats.

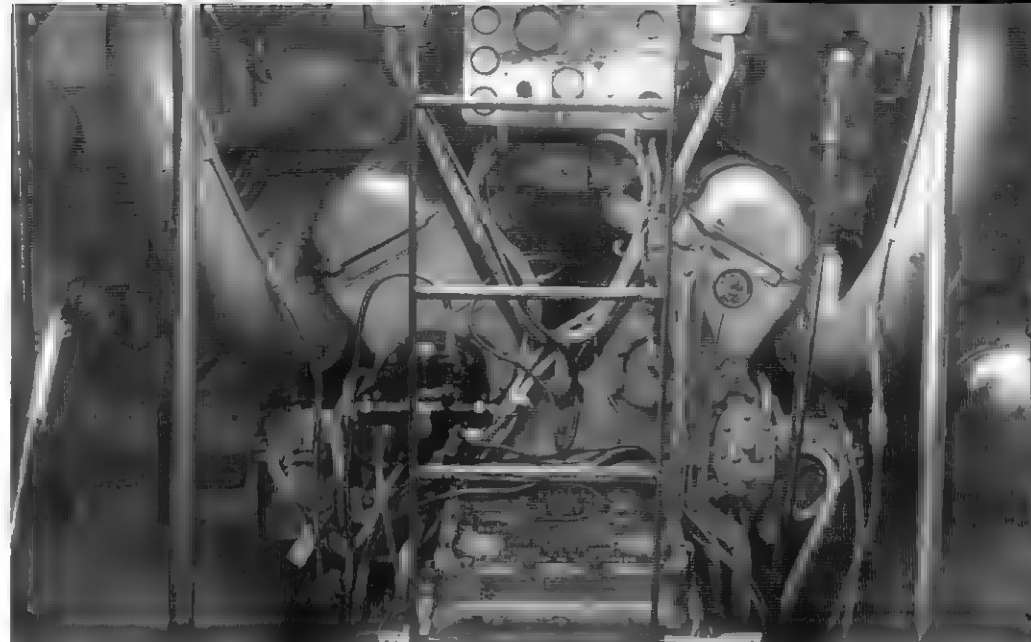
The Admiralty purchased two Asso 1000s to power Vosper's private venture MTB-102 in 1938, then immediately ordered 39 more engines from the Italian government. The latter order included 36 working engines and three engines for spare parts salvage. The Royal Navy received 13 Isotta-Fraschini engines before Italy entered the war on 10 June 1940. The engines received by the British went into the first ten Vosper boats, MTBs 20 to 23, 29 and 30, 71 and 72, and Nos. 5 and 6 of Norway.

Italy's entry into World War II ended the supply of Isotta-Fraschini engines to Great Britain and forced the Royal Navy to look to the United States for MTB powerplants. The first American-made engine used on Vosper boats was the 650 hp Hall-Scott Defender engine. The Hall-Scott Motor Car Company of Berkeley, California manufactured this 12-cylinder powerplant, which used 87-octane gasoline. The engine could be coupled to the propeller shaft via a direct drive or through a reduction gear. The company produced models 2286 and 3368 for clockwise-turning propellers and models 2287 and 3369 for propellers turning counterclockwise. A standard Defender with reduction gear weighed 4600 pounds (2086.6 kg), while a supercharged version with reduction gear weighed 5400 pounds (2449.4 kg).

The Hall-Scott Defender's low standard output resulted in the addition of a supercharger for use on the MTBs. The 900 hp supercharged Hall-Scott engine remained less powerful than the Royal Navy desired. This powerplant restricted the top speed of the MTBs to 28 knots (51.9 kmh), compared to the 40 knots (74.1 kmh) possible with the lighter and more powerful Isotta-Fraschini engine. Nevertheless, the Defender was installed in 17 Vosper torpedo boats from MTB-34 of the 1939 contract to MTB-66 of the 1940 contract. The Royal Navy needed a more powerful marine engine for their MTBs to reach the desired speed.

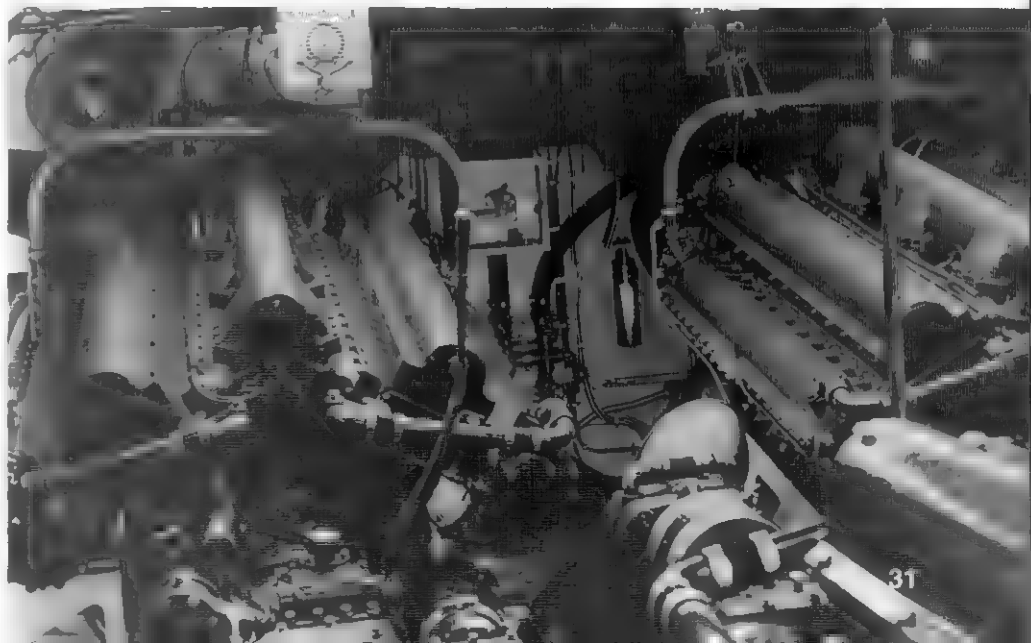
The engine the British then turned to was another American powerplant – the 1200 hp Packard 4M-2500. This 12-cylinder, V-type supercharged engine with direct drive to the propeller shafts was built by the Packard Motor Car Company of Detroit, Michigan. This powerplant was derived from the 750 hp Liberty aircraft engine Packard developed in World War I. The liquid-cooled 4M-2500 weighed 2950 pounds (1338.1 kg) and consumed the same 87-octane gasoline used by the earlier Isotta-Fraschini and Hall-Scott engines. The US Navy's PT boats used the same engine, which allowed some commonality of maintenance support among the Allied torpedo boat fleets. During World War II, the output of the 4M-2500 increased from 1200 hp in 1939 to 1350 hp in 1941 and to 1500 hp in 1943.

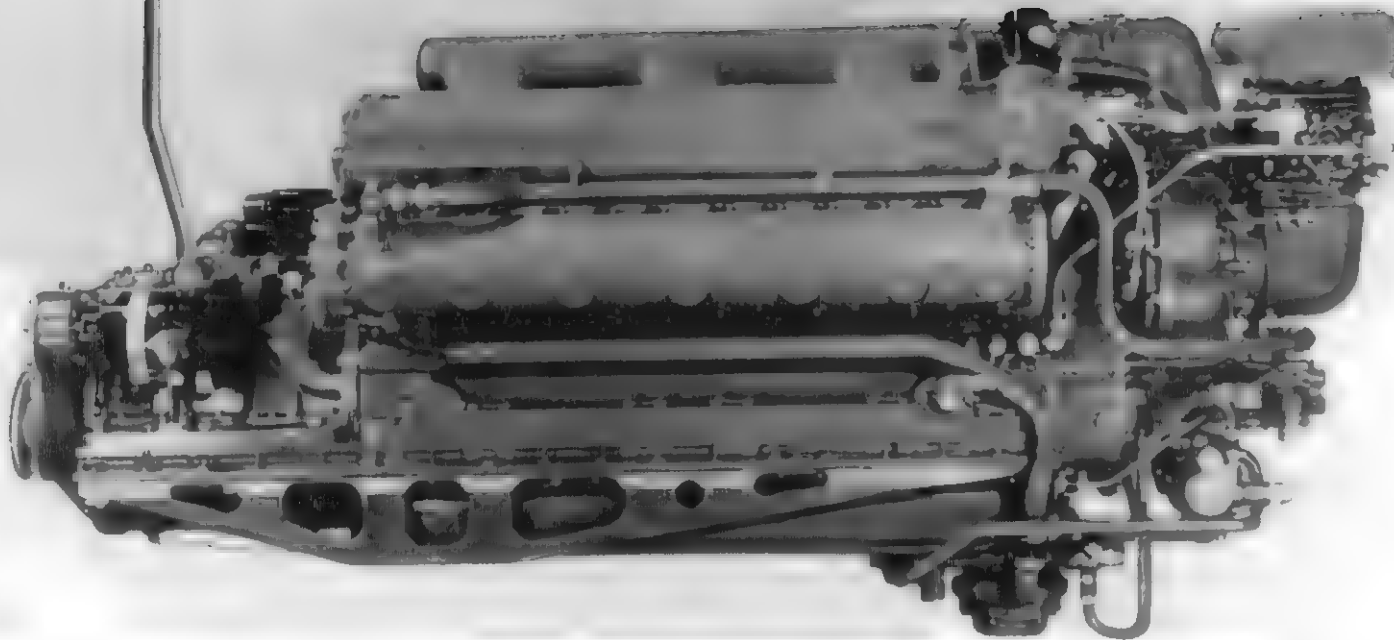
The British and Canadians received 68 of the 149 4M-2500 engines produced by Packard in 1940. The Royal Navy retrofitted the Hall-Scott-powered MTBs of the 1939 and 1940 contracts with the new engines. These vessels saw their maximum speed increase from 28 knots (51.9 kmh) with the Hall-Scott engine to 38.9 knots (72.1 kmh) with the Packard engine. Packard 4M-2500 engines became standard equipment on the 1940 contract vessel MTB-73 and on Vosper's subsequent wartime torpedo boats. The British purchased or received through Lend-Lease a total of 4686 Packard marine engines between 1940 and 1945.



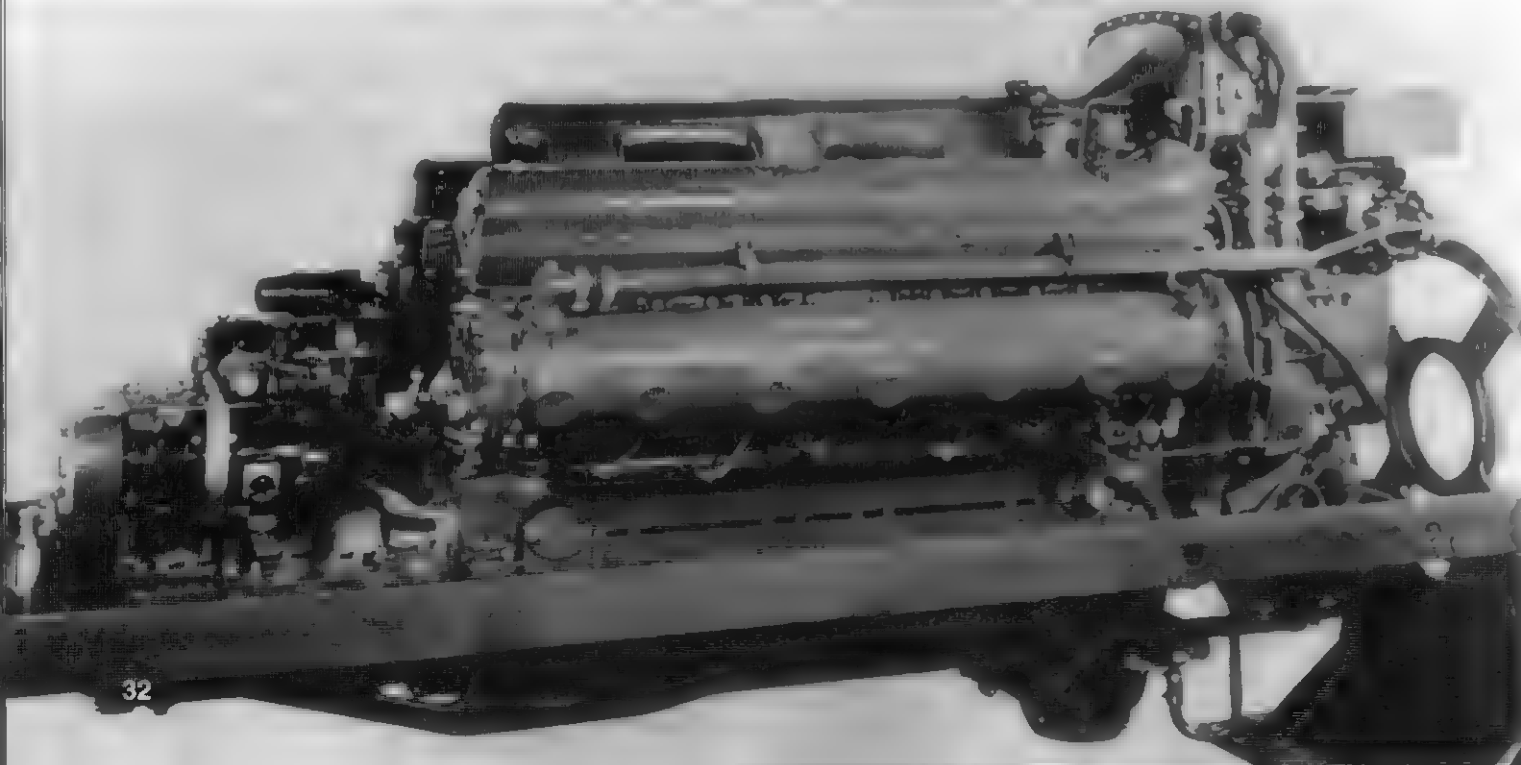
One of MTB-36's three 900 hp Hall-Scott Defender engines was mounted in the rear of the engine room to drive the center propeller shaft, while the other two powerplants were installed ahead of this. Large tubes above the engines carried water-cooled exhaust out of the vessel. MTBs powered by Hall-Scott engines could only reach 28 knots (51.9 kmh). (Vosper Thornycroft (UK) Ltd via John Lambert)

The two forward 1350 hp Packard 4M-2500 engines directly drove the outboard propeller shafts of a 1941 contract Vosper MTB. Instruments for monitoring the three engines' performance were placed in a panel on the engine room's forward bulkhead. The three levers mounted above the starboard engine were used to put the Packards into reverse gear. (Vosper Thornycroft (UK) Ltd via John Lambert)





Beginning with MTB-73 in 1940, the 12-cylinder, supercharged Packard 4M-2500 marine engine was the standard powerplant of Vosper MTBs. The shaft rising vertically from the engine's reverse unit connected to the reverse gear lever located in the engine room. This American-made V-type, liquid-cooled powerplant weighed 2950 pounds (1338.1 kg). Power output of 4M-2500 engines increased from 1200 hp in 1939 to 1350 hp in 1941. This engine was also the standard powerplant of US PT boats in World War II. (PT Boaters, Inc.)



The 1500 hp Packard 5M-2500 engine was a refinement of the earlier 4M-2500 and powered the late war Vosper MTBs. Packard marine engines used a closed-circuit distilled water cooling system to prevent engine corrosion resulting from salt water getting into the powerplant. The US delivered 4686 Packard engines to the British from 1940 to 1945. (PT Boaters, Inc.)

Armament

The Royal Navy armed their Motor Torpedo Boats (MTBs) with both light and heavy machine guns to provide close-in defense against enemy aircraft and vessels. The World War I vintage .303 caliber (7.7MM) Lewis Gun was used on the early MTBs before being superseded by the .303 caliber Vickers machine gun from 1940. The twin .5 inch (12.7MM) Vickers machine gun installed on a Mark V turret was installed on torpedo boats from 1940. The jackets surrounding the .5 inch gun barrels held cooling water to allow sustained periods of firing. The water jackets were fitted with a steam escape and drain valve on the front of the jacket and a filling plug at the base.

.303 Caliber Lewis Mark I Machine Gun

Caliber: .303 inch (7.7MM)

Length: 4 feet 2.5 inches (1.3 M)

Barrel Length: N/A

Weight: 26 pounds (11.8 KG)

Muzzle Velocity: 2450 feet (746.8 M) per second

Rate of Fire: Approximately 550 rounds per minute

Amount of Ammunition: 47 or 97 round drum magazines

Effective Range: 400 yards (365.8 M)

The .303 caliber Lewis machine gun was developed as an infantry support weapon just prior to World War I. Lewis guns deployed on MTBs did not employ the sling used by army versions to carry over the shoulder. The 47-round drum magazine was removed from the lower weapon to display the magazine attachment. Lewis guns could also use 97-round ammunition drums. (Vosper Thornycroft (UK) Ltd via John Lambert)



Early Vosper MTBs were equipped with two gun tubs located amidships. Two .303 caliber Lewis machine guns were mounted on the bracket projecting from the tub to provide the gunner with full 360° traverse. In 1940, the two .303 gun turrets were replaced by the twin .5 inch Vickers machine gun turret, which provided increased firepower against aircraft and surface vessels. (Vosper Thornycroft (UK) Ltd via John Lambert)





Vosper MTBs also mounted .303 caliber Lewis guns in twin pintle mounts flanking the wheelhouse similar to these weapons mounted on an early Elco PT boat for the US Navy. A visual sight placed between the guns assisted the gunner in sighting targets. Pintle mounts were also used for the .303 caliber Vickers machine gun, which began to replace the Lewis weapon in Royal Navy service from 1940. (PT Boaters, Inc.)



.303 Caliber Vickers Gas-Operated Mark I No 5 Machine Gun

Caliber: .303 inch (7.7MM)

Length (Including Flash Eliminator): 3 feet 4 inches (1.0 M)

Barrel Length: 1 foot 8 inches (0.5 M)

Weight: Approximately 20 pounds (9.1 KG)

Muzzle Velocity: N/A

Rate of Fire: Approximately 950 rounds per minute

Amount of Ammunition: 100 round drum magazine

Effective Range: 400 yards (365.8 M)

.5 Inch Vickers Machine Gun

Caliber: .5 inch (12.7MM)

Length: 4 feet 4 inches (1.3 M)

Barrel Length: 2 feet 7.1 inches (0.8 M)

Empty Weight: 56 pounds (25.4 KG)

Weight with Water Jacket Filled: 62 pounds (28.1 KG)

Muzzle Velocity: Approximately 2520 feet (768.1 M) per second

Rate of Fire: Approximately 700 rounds per minute

Amount of Ammunition: 650 rounds box magazine

Effective Range: N/A

Mark V Mount for Twin .5 Inch Vickers Machine Guns

Diameter, Outside of Turret Base Rings: 4 feet 5.5 inches (1.4 M)

Diameter of Turret Barbette: 4 feet (1.2 M)

Radius Swept (at 0° Elevation): 3 feet 8 inches (1.1 M)

Weight of Turret (Empty): 917 pounds (416 KG)

Weight of Turret (Fully Loaded): 1289 pounds (584.7 KG)

Power Source: Hydraulic

Training Rate: 0° to 72° per second

Elevating Rate: 0° to 50° per second

Arc of Elevation: -10° to +70°

Arc of Training: 360°

Oil Used: DTD 44C

Quantity of Oil Used in System: 2 gallons (7.6 L)

Firing Mechanism: Hydraulic

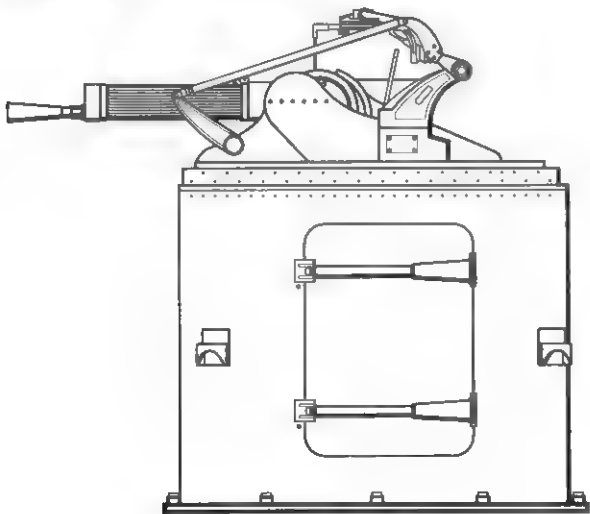
Gunsight: Visual

Twin .303 caliber Vickers machine guns were pintel-mounted atop the aft torpedo tubes of a 1943 to 1945 contract Vosper MTB. A bead and ring gunsight was mounted between the guns to assist the gunner in aiming the weapon at enemy targets – including aircraft, vessels, and troops. Ammunition for this gun was usually supplied in 100-round drums mounted on top of the breech mechanism. The Vickers machine gun's rate of fire was approximately 950 rounds per minute, compared to approximately 550 rounds per minute for the Lewis gun. Both of these .303 caliber weapons had an effective range of 400 yards (365.8 M). (Vosper Thornycroft (UK) Ltd via John Lambert)



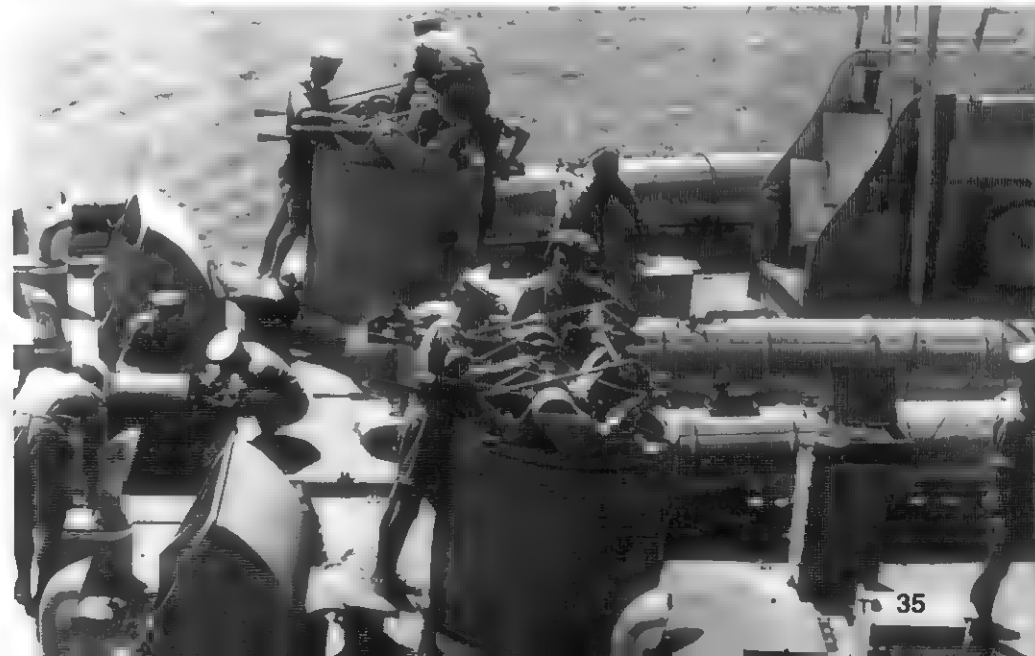
A gunner aboard MTB-94 aims his twin .5 inch Vickers machine guns skyward off Weymouth, England on 18 January 1943. A ring gunsight above the gunner's head assisted him in aiming his weapons at enemy aircraft. The Mark V turret could elevate the guns up to 70°. (Vosper Thornycroft (UK) Ltd via John Lambert)

0.5 Inch (12.7MM) Vickers Machine Guns on Twin Mark V Mount



Royal Navy sailors change .5 inch Vickers machine guns on a Vosper MTB on 18 July 1943. These weapons used both smooth and fluted cooling jackets, the latter offering greater surface area for cooling water. The conical projections at the muzzles were flash suppressors. (Imperial War Museum)

Sailors conduct maintenance on two Vosper MTBs docked at a British base in the Mediterranean Sea. The two parallel bars over the Mark V turret opening supported the gunsight, which elevated with the .5 Inch Vickers machine guns. (Imperial War Museum)



The Swiss-designed 20MM Oerlikon gun was primarily used in the anti-aircraft role; however, the weapon was also used against surface targets. This gun fired explosive, armor piercing, and tracer rounds. The Royal Navy mounted their Oerlikon weapons on several single and twin mounts during World War II. The Mark I single mount was designed to allow its gunner to easily hold the most comfortable firing position from any angle. Lead balance weights were placed in two boxes located at the rear of the gun cradle. A canvas bag to catch expended shell casings was also attached to the cradle.

The Mark IIA mount featured a fixed height pedestal and a stepped platform to facilitate easier gun movement. A step was attached to the pedestal to ease magazine changing by the ammunition handler. The muzzle-heavy 20MM gun was balanced with a clock-type counter spring attached to the left trunion (gun support) and a half-filled ammunition magazine fitted to the gun. The Mark IIIA mount had a similar design as the Mark IIA; however, it featured a simpler design to ease manufacturing.

Vosper MTBs manufactured under license in the United States were armed with US-made 20MM guns and mounts. The Mark IV mount was similar to the Mark I; however, the Mark IV added a .5 inch (12.7mm) thick steel gun shield to provide some protection for the gunners. The United States also supplied the Mark V mount on license-built Vosper boats. The Mark V was similar to the Mark IIA; however, the newer mount had a heavy cast iron pedestal and a shorter pivot. The cylindrical pivot rested on a bearing bush on top of the mount for abrasion protection and on a phosphor-bronze block at the bottom. A two-piece gun shield was also fitted.

The Mark IIA mount was replaced by the Mark VIIA, a short cylindrical pedestal secured to the deck by eight bolts. A cam and chain device was used to correct muzzle heaviness. The

Sailors aboard MTB-353 attend to the boat's foredeck mounted 20MM Oerlikon gun in the ferry dock at Dover, England in March of 1944. A canvas cover is being removed from the weapon's breech mechanism. The .5 inch (12.7 cm) thick gunshields provided some protection for the gunner against enemy fire, while thick mats were designed to stop light shrapnel and wood splinters. (Imperial War Museum)



Mark VIIIA was the final 20MM single mount used on Vosper's wartime MTBs. This was a low-angle, lightweight gun mount designed for use on coastal vessels. The cone-shaped steel pedestal was secured to the deck with 12 bolts. A .5 inch (12.7 mm) thick steel gun shield was fitted to the Mark VIIIA mount and a canvas bag hooked onto the end of the breech casing to catch expended shells.

Vosper MTBs carried twin 20MM guns on a manually operated mount designated Mark IX (also called the Mark T) during the latter half of World War II. A Royal Navy officer devised this mount in 1943, which allowed increased firepower on a lightweight mount suitable for MTBs.

20MM Oerlikon Gun

Caliber: 0.8 inches (20MM)

Overall Length: 8 feet (2.4 m)

Weight (Gun Only): Approximately 141 pounds (63.9 kg)

Muzzle Velocity: 2725 feet (830.6 m) per second

Rate of Fire: 465 to 480 rounds per minute

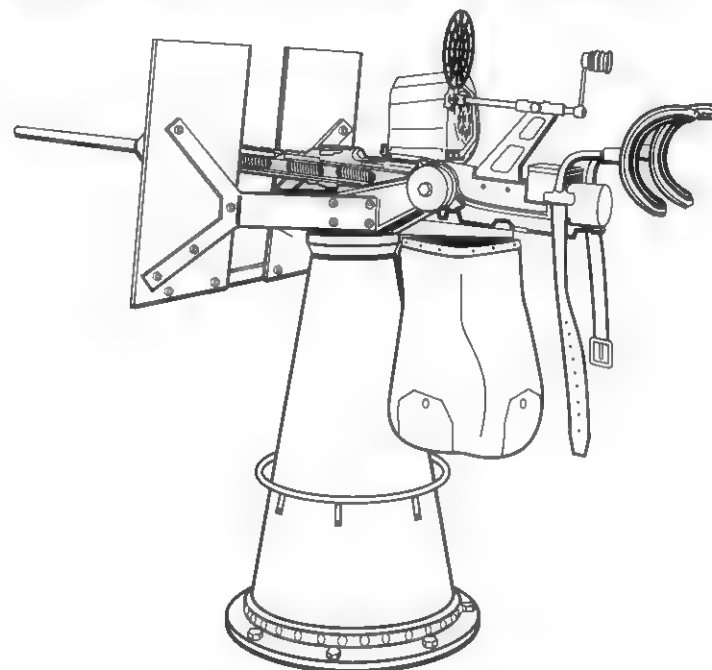
Amount of Ammunition: 60 round drum magazine

Effective Range: 1000-1200 yards (914.4-1097.3 m)

Maximum Range: Approximately 6250 yards (5715 m) at 45° elevation

Maximum Altitude: 6000 feet (1828.8 m)

20MM Oerlikon Gun on Mark IIA Mount



MTBs were also equipped with heavier automatic weapons for use against aircraft and surface targets. Some late World War II US-built Vosper boats were equipped with a single 40MM Bofors gun. This Swedish-designed weapon was built by both the British and Americans for use primarily in the anti-aircraft role. This gun was mounted on the aft deck of MTBs 396 to 411 and was visually aimed.

Another weapon of the same caliber employed by the MTBs was the 2-pounder Vickers QF (Quick Firing) Mark VIII gun, which was retrofitted into some Vosper 1940 contract boats late in the war. This was also mounted on the engineering testbed MTB-510. This 1.575-inch (40MM) caliber weapon – nicknamed the ‘pom-pom’ gun for the sound this made when firing – was water cooled for sustained rates of fire. The ‘pom-pom’ lacked the muzzle velocity, range, and altitude performance of the Bofors gun; however, the 2-pounder weapon proved effective in the applications used by the MTBs.

40MM Bofors Gun

Caliber: 1.575 inches (40MM)
Overall Length: 12 feet 1.5 inches (3.7 M)
Barrel Length: 7 feet 4.6 inches (2.2 M)
Weight: 1163 pounds (527.5 KG)
Muzzle Velocity: 2890 feet (880.9 M) per second
Rate of Fire (Cyclic): 160 rounds per minute
Amount of Ammunition: 4 round clip
Maximum Range: 11,000 yards (10,058.4 M) at 42° elevation
Maximum Altitude: 22,800 feet (6949.4 M) at 90° elevation

2 Pounder Vickers QF Mark VIII Gun

Caliber: 1.575 inches (40MM)
Overall Length: 9 feet 6.6 inches (2.9 M)
Barrel Length: 5 feet 2 inches (1.6 M)
Weight: 784 pounds (355.6 KG)
Muzzle Velocity: 2400 feet (731.5 M) per second
Rate of Fire: Approximately 115 rounds per minute
Amount of Ammunition: 4 round magazine
Maximum Range: 6800 yards (6217.9 M)
Maximum Altitude: 13,000 feet (3962.4 M)

The 1945 contract Vosper Type II 73-foot (22.3 M) long MTBs received a more powerful gun armament than earlier Vosper torpedo boats, in the form of the 6-pounder QF Mark IIA gun. This 2.24 inch (57MM) weapon was originally developed to arm the British Army's Valentine cruiser tanks and later was deployed as an anti-tank gun. This weapon was installed on a Mark VIII powered mount and placed on the foredeck of the Type II MTBs. MTB-510 replaced the forward 2-pounder gun with the 6-pounder early in 1945.

The 6-pounder gun was issued with high explosive rounds for use against enemy shipping and surface targets. Operational MTBs armed with this weapon were not completed in time to participate in World War II.

6-Pounder QF Mark IIA Gun

Caliber: 2.24 inches (57MM)
Length: 8 feet 4.95 inches (2.6 M)
Barrel Length: 8 feet 0.2 inches (2.4 M)
Weight: 760 pounds (344.7 KG)
Muzzle Velocity: 2150 feet (655.3 M) per second
Rate of Fire: 40 rounds per minute
Maximum Range: 6200 yards (5669.3 M) at 12° elevation

MTBs also carried the standard Mark VII depth charge first issued to the Royal Navy in 1917. The depth charge weighed 410 pounds (186 KG) and measured 28 inches (71.1 CM) long and 17 inches (43.2 CM) in diameter. The Mark VII carried a charge of 396 pounds (179.6 KG) of explosive for use against enemy submarines and pursuing surface ships. In the latter role, a depth charge could be set to explode at low depth and rolled over the side at an enemy ship. The charge could destroy a torpedo boat and seriously damage destroyers and other small warships. The effective use of depth charges against enemy submarines was hampered by the lack of sonar (ASDIC to the British) on board MTBs.

Vosper's 1943 to 1945 contract MTBs were equipped with a pair of 2-inch (5.1 CM) rocket flare projectors, which were mounted on the forward torpedo tubes. Flares were launched electrically from the projector at distances ranging from 1.25 to 2.25 miles (2 to 3.6 KM) to provide momentary lighting for night actions.

Two sailors steady themselves on a fully elevated 40MM Bofors gun while their boatmates load a torpedo into an MTB's port tube at a Mediterranean Sea base. The gunner's two ring sights were mounted on posts attached to the gun. The boat moored alongside was equipped with a twin 20MM Oerlikon mount located amidships. (Imperial War Museum)



British MTBs were armed with either 21-inch (53.3 cm) or 18-inch (45.7 cm) torpedoes during World War II, while American PT boats only used 21-inch weapons. The 21-inch torpedo tubes were mounted on the 70-foot (21.3 m) Vosper boats at an angle of 7.5° from the bow. The torpedo tubes were fired by creating an explosion in the combustion chamber at the rear of the tube. The torpedo was launched using a 15-ounce (425.3 g) cordite impulse charge released into a chamber to the tube's rear. This charge was usually set off from the bridge by firing levers; however, if the charge failed, a sailor fired the tube by striking it with a wooden mallet. Crews could set torpedo depth settings either before the boat went out on patrol or during patrol while the torpedo was in the tube.

The 21-inch Mark VIII torpedo was a cylindrical shell divided into four sections: the warhead and firing mechanism, the forebody, the afterbody, and the tail. The forebody contained an air vessel of 15.66 cubic feet (0.44 m³) with a maximum working pressure of 2500 pounds (1134 kg) per square inch and a balance chamber. The balance chamber housed the depth gear, stop valve, charging valve, main oil bottle, and fuel bottle. The afterbody was a free-flooding section housing the torpedo's engine compartment and a water-tight buoyancy chamber. The buoyancy chamber contained the gyro and gyro pushrod, the center tube, and the propeller shaft. The tail section contained the propeller shaft gearing and bearings, horizontal and vertical rudder crossheads, the steering engine, and two contrarotating propellers.

The 18-inch torpedoes, originally designed for aircraft use, were fitted to the MTBs due to a shortage of the 21-inch weapons. The 18-inch torpedo tubes were small and lighter in weight than the tubes for the larger torpedoes. The supply of 21-inch torpedoes grew with the Royal Navy's requirements for these weapons and these were standardized due to their greater destructive power.

The opening of the 21-inch torpedo tube mounted on the US-built MTB-284 was covered with canvas to prevent seaspray from entering the tube and corroding the tube and weapon inside. A combustion chamber attached to the tube's aft end provided the explosive force to launch the torpedo. The torpedo tube remained the same throughout World War II, although the tube mounting varied in detail among Vosper MTBs. (Vosper Thornycroft (UK) Ltd via John Lambert)

Construction of the 18-inch Mark XV torpedo was similar to that of the 21-inch Mark VIII; however, the Mark XV's original deployment from aircraft resulted in a strengthened body. The Mark XV's warhead was 260 pounds (117.9 kg) lighter than the Mark VIII's due to the smaller size of the 18-inch weapon.

21 Inch (53.3 cm) Royal Naval Torpedo Factory Mark VIII Torpedo

Length: 21 feet 7 inches (6.6 m)

Weight: 3452 pounds (1565.8 kg)

Explosive Charge: 722 pounds (327.5 kg) of TNT; later, 805 pounds (365.1 kg) of Torpex
Exploder: Contact

Limits of Depth Settings: 0 to 44 feet (0 to 13.4 m)

Propulsion: Steam turbine

Range: 5000 yards (4572 m) at 45.5 knots (84.3 kmh), or 7000 yards (6400.8 m) at 41 knots (76 kmh)

18 Inch (45.7 cm) Royal Naval Torpedo Factory Mark XV Torpedo

Length: 17 feet 2.75 inches (5.3 m)

Weight: 1801 pounds (816.9 kg)

Explosive Charge: 545 pounds (247.2 kg) of Torpex

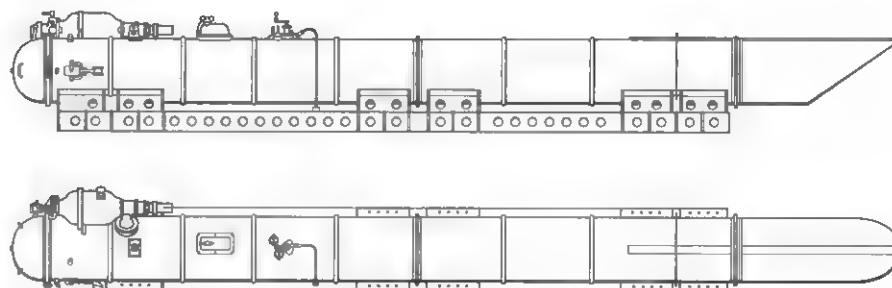
Exploder: Contact

Limits of Depth Settings: 4 feet to 44 feet (1.2 m to 13.4 m)

Propulsion: Steam turbine

Range: 2500 yards (2286 m) at 40 knots (74.1 kmh), or 3500 yards (3200.4 m) at 33 knots (61.2 kmh)

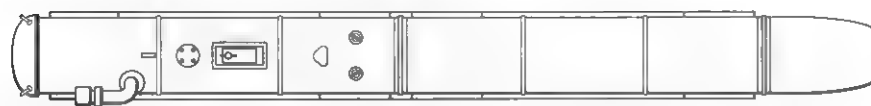
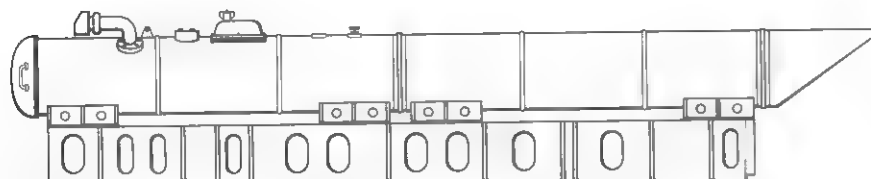
21 Inch (53.3 cm) Torpedo Tube





Sailors aboard the schooner HMS RAGEA hoist a 21-inch Mark VIII torpedo for delivery to MTB-258 moored alongside. The weapon's two contrarotating propellers spun in opposite directions for more precise control. Both the 21-inch and the 18-inch torpedoes used by the MTBs were powered by steam turbines. The torpedo originally carried a charge of 722 pounds (327.5 kg) of TNT, which was raised to 805 pounds (365.1 kg) of more potent Torpex in 1943. (Imperial War Museum)

18 Inch (45.7 cm) Torpedo Tube



MTB-523, the first 1943 contract Type II boat, was armed with two 18-inch torpedo tubes mounted on the aft deck. This was a reduction from four tubes in the earlier Type I MTBs due to the scarcity of torpedo-worthy targets by early 1945. MTB-523 performs trials in July of 1945 before entering Royal Navy service. (Vosper Thornycroft (UK) Ltd via John Lambert)

Two sailors unload an 18-inch torpedo from the starboard tube of an ex-Norwegian torpedo boat requisitioned by the British early in World War II. The 18-inch Mark XV torpedo was 4 feet 4.25 inches (1.3 m) shorter and 1651 pounds (748.9 kg) lighter than the 21-inch Mark VIII used earlier in the war. (Vosper Thornycroft (UK) Ltd via John Lambert)





A 21-inch Mark VIII torpedo is loaded aboard MTB-94 from the torpedo jetty at Weymouth, England in early 1943. The weapon was lowered onto the loading cradles mounted behind each torpedo tube and then inserted into the tube by sailors aboard the vessel. The Mark VIII torpedo was 21 feet 7 inches (6.6 m) long and weighed 3452 pounds (1565.8 kg). (Vosper Thornycroft (UK) Ltd via John Lambert)



Torpedo tubes were mounted on both sides of MTB-22 when she was launched at the Vosper yard in Portsmouth, England on 3 April 1939. Torpedo tubes were placed 7.5' off the center of the bow of 70-foot (21.3 m) long Vosper MTBs. Nine flanges on the tube maintained its structural integrity. Two 350-gallon auxiliary fuel tanks were mounted behind the torpedo tubes. (Vosper Thornycroft (UK) Ltd via John Lambert)

A 21-inch (53.3 cm) torpedo is test launched from an early Vosper MTB's port tube at the Royal Navy's Torpedo School, HMS VERNON, in Portsmouth, England. Water used to lubricate the torpedo tube sprayed out with the weapon. Due to their cost, training torpedoes were designed to float and be recoverable for reuse. (Vosper Thornycroft (UK) Ltd via John Lambert)



Operational Usage of Vosper MTBs

The Royal Navy's Motor Torpedo Boats (MTBs) were deployed in most of Great Britain's theaters of naval operations in World War II. These theaters included the English Channel, the North Sea, the Mediterranean Sea, the Indian Ocean, and the Pacific Ocean. MTBs were deployed in many of the same theaters of operations as their American counterparts, the Patrol Torpedo (PT) boats. The Royal Navy used the Vosper boats to best advantage in the English Channel, the narrow strait separating Great Britain and the continent of Europe. MTBs participated in 15 engagements in the Channel from 21 June 1942 to 25 July 1943.

Vosper boats were employed on such duties as coastal patrol, convoy escort, delivery and pick-up of secret agents, supporting commando raids, and anti-shipping strikes. Many of these missions took place at night, where the cover of darkness reduced the risk of detection and attack by enemy ships, aircraft, and shore defenses. Vosper MTBs in British home waters were based at Dartmouth (HMS CICALA), Dover (HMS WASP), Felixstowe (HMS BEEHIVE), and Gosport (HMS HORNET). MTB crew training took place at HMS BEE, originally located at Weymouth and later moved to Holyhead. The torpedo school was located at HMS VERNON, Portsmouth. Royal Navy establishments were given ship-type names.

Patrols of two or three MTBs were common early in World War II, while up to six boats made up later war patrols. Vessels on patrol often followed a line-ahead formation, led by the senior officer's boat. This formation could be easily maintained by the following boats regardless of the direction taken by the lead vessel; however, changes in the leader's speed were harder for other vessels in the formation to observe. Torpedo boat patrols sometimes deployed in V-shape formations to reduce the effect of the lead vessels' wakes on the trail boats in the formation. MTBs maintained a separation distance under good weather conditions of approximately 70 yards (64 m), which was increased under worsening sea or weather conditions.

The boats usually cruised at 25 knots (46.3 kmh) to conserve fuel and extend their range until closing with the enemy. Prior to the introduction of radar on MTBs in 1942, lookouts on the torpedo boats strained to find opposing ships in the darkness. Vessel commanders needed this input to quickly determine the size and composition of the enemy force and the most effective tactics to use against it. The MTBs approached enemy vessels quietly at low speed – approximately 7 to 9 knots (13 to 16.7 kmh). Early Vosper torpedo boats had one or two auxiliary engines used for this purpose. The development of the Dumbflow silencer during the war allowed the removal of the auxiliary powerplants and eliminated the need to disengage and later re-engage the main powerplants during an attack.

The enemy ships targeted by the MTBs ranged from destroyers and mine layers to merchant vessels and *schnellbooten* (German torpedo boats). The latter vessels were known as 'E-boats' (enemy boats) by the British. The MTB force often split in half to attack enemy vessels from opposite directions to increase the likelihood of successful torpedo hits in the event the target took evasive action. The use of torpedoes was restricted to merchant ships and destroyers, due to the running depths of these weapons. Torpedoes were usually launched from 200 to 600 yards (182.9 to 548.6 m) from the target and angled from 60° to 70° angles on the target's bow. These distances and angles allowed the torpedoes to close the distance to the target with little warning time for evasive measures by the enemy. Automatic weapons – including the .5 inch (12.7mm) Vickers machine gun and the 20mm Oerlikon gun – were often employed against 'E-boats.' Rifle caliber (.303 inch/7.7mm) machine guns and hand grenades were used in close-range 'boat-to-boat' battles with enemy torpedo boats.

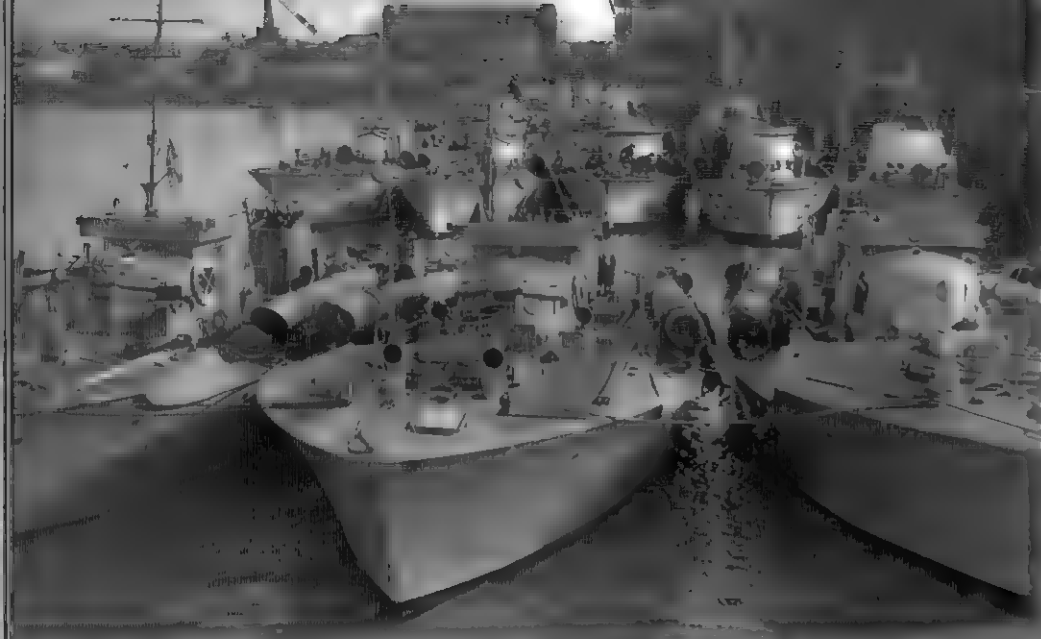
Maximum speeds of MTBs were usually restricted to disengagement from 'hit-and-run'



MTB-44 is berthed beside another Vosper MTB at the ferry dock in Dover, England. The two black-hulled vessels numbered 122 and 123 were Royal Air Force high speed rescue launches. The dock was covered with a camouflage net to hide the boats from enemy aircraft and reduce the risk of an enemy attack. (Vosper Thornycroft (UK) Ltd via John Lambert)

German aircraft bombed an uncamouflaged MTB-33 at the Vosper yard in Portsmouth, England on 26 September 1940. Two men inspect amidships damage while the still smoking hulk rests on the bottom. The Royal Navy wrote off MTB-33 after this attack. (Vosper Thornycroft (UK) Ltd via John Lambert)





Eight Vosper MTBs lay at anchor at HMS BEEHIVE, Felixstowe, England in March of 1943. The boats in the front row – MTBs 234, 223, and 241 – were assigned to the 21st MTB Flotilla. The five boats in the next row – MTBs 32, 34, 72, 69, and 70 – served with the 4th Flotilla. (Vosper Thornycroft (UK) Ltd via John Lambert)

Crewmen attend to the 4th MTB Flotilla's Vosper boats – MTBs 72, 34, 32, 69, and 70 – at Felixstowe in the spring of 1943. Two Motor Gun Boats were berthed behind the MTBs, and three other Vosper torpedo vessels were docked ahead. Vosper MTBs based in British home waters also operated from Dartmouth, Dover, and Gosport in England. (Vosper Thornycroft (UK) Ltd via John Lambert)



attacks. The high speeds of these vessels provided their best protection against enemy fire, which could easily inflict serious damage to a wooden torpedo boat. Smoke generated from a stern-mounted apparatus helped shield the torpedo boats from the enemy's view while the British vessels departed for their home base. Once out of imminent danger, the vessels reduced speed to approximately 25 knots (46.3 kmh) for the cruise to port.

Throughout World War II, Vosper MTBs, along with Motor Gun Boats (MGBs) and MTBs built by other companies, fought 464 actions in British home waters. The British sank 269 enemy ships for a loss of 76 of their own during these battles – a ratio of 3.5 enemy vessels sunk for each British boat lost. British coastal craft of all types – including Vosper boats – took part in 316 engagements in other theaters of war.

The MTBs grew from a negligible force at the beginning of World War II in 1939 to a sizeable force to be reckoned with by 1943. Their simplicity – a benchmark at the time of their birth – was actually 'state of the art' in coastal vessels for their time. These boats would prove their capabilities time and again in actions taken against Axis naval forces. The MTBs, in league with their American and French counterparts, protected the D-Day invasion forces in the summer of 1944.

The British MTBs – like their American counterparts, the PT boats – had little to fight with to face a large, well-armed enemy. They could take on a large ship or even a large force and win using a little ingenuity, strategy, and stealth. Many MTBs were destroyed in action and many of their crewmen lost their lives; however, the enemy was no better off thanks to the tenacity of the British seamen and their vessels. The MTBs did what they were supposed to do and did it extremely well.

MTB-80 was a 1940 contract boat equipped with single mounted .303 caliber Vickers machine guns flanking the wheelhouse. She was also equipped with a Type 291U surface search radar and a 240 series IFF (Identification Friend or Foe) system. MTB-80 cruises at high speed after delivery to the Royal Navy on 18 January 1943. (Vosper Thornycroft (UK) Ltd. via John Lambert)





MTB-102, Vosper's private venture torpedo boat, was equipped with two 21-inch torpedo tubes flanking the wheelhouse in 1938. She did not see operational service as an MTB; however, MTB-102 participated in OPERATION DYNAMO – the evacuation of British and French forces from Dunkirk, France in 1940. (Vosper Thornycroft (UK) Ltd via John Lambert)

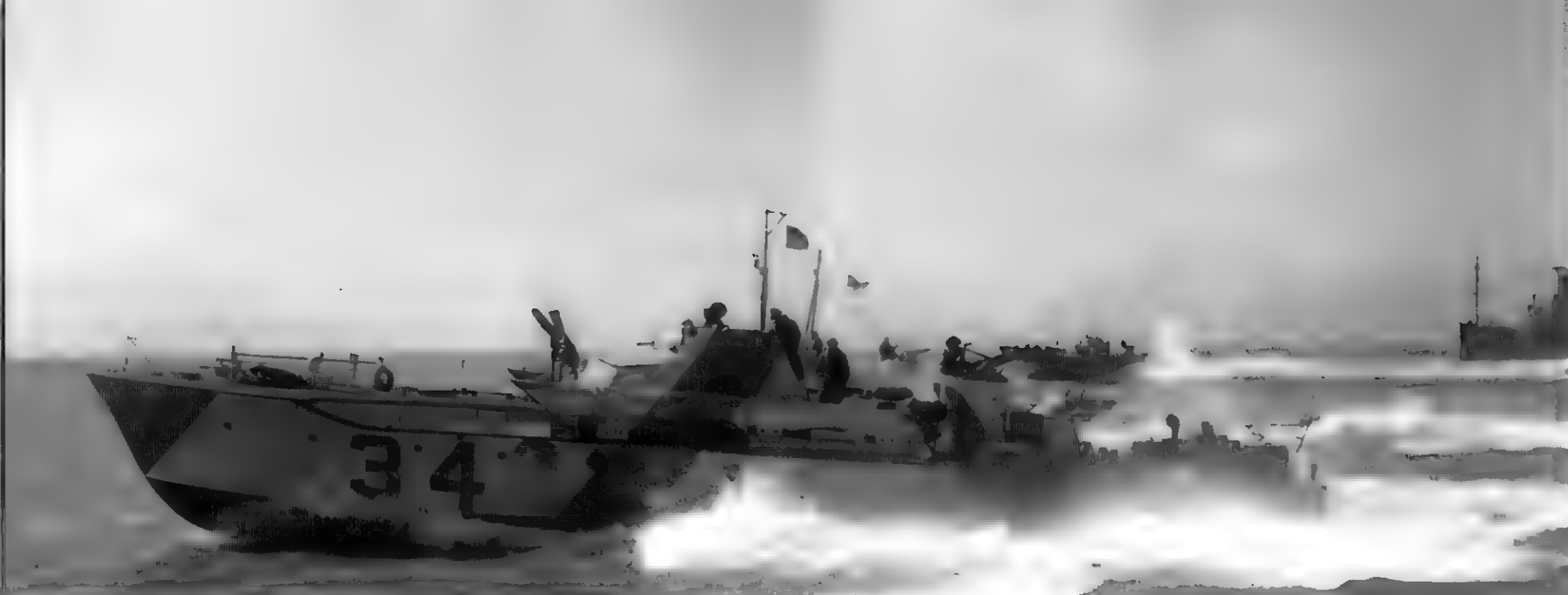
MTB-89, a 1940 contract Vosper boat, had its upper hull and superstructure painted pale gray for reduced visibility at night, when MTBs conducted most of their operations. Padded coverings were placed around the wheelhouse for additional protection against enemy fire. MTB-89 races at full speed in December of 1942. (National Archives)



MTB-32 patrols British home waters soon after she was commissioned on 24 July 1940. The two jettisonable 350-gallon fuel tanks on the afterdeck extended the vessel's operational range while ferrying from port to port. MTB-32 was converted to a target boat redesignated CT 24 in 1943 and was retired by the Royal Navy two years later. (Vosper Thornycroft (UK) Ltd via John Lambert)

The top deck, deck fittings, and weapons of MTB-89 were painted dark gray for reduced visibility from the air. Two depth charges were mounted on afterdeck racks, while another depth charge rack aft of the starboard torpedo tube is empty. MTB-89 rests on the surface while on patrol in December of 1942. (National Archives)





(Above) MTB-34 and MTB-31, with a third boat between them, pass a merchant ship while heading out for a patrol in the North Sea. An unusual white and gray camouflage pattern was painted on the hull and superstructure of MTB-34. The .303 caliber (7.7mm) machine guns mounted on MTB-34's foredeck were covered with canvas for protection from corrosive seaspray. MTB-34 was the first Vosper 1939 contract MTB to be powered by 900 hp Hall-Scott engines. Both MTB-34 and MTB-31 were converted to controlled target vessels – designated CT 23 and CT 22, respectively – in 1943. (Imperial War Museum)



(Left) This unidentified early Vosper MTB's hull, superstructure, and top deck were painted dark gray, while the hull below the waterline was black. This vessel was possibly one of the Greek or Romania boats. The boat's brass ventilators were unpainted and polished before World War II began. These were painted in the boat's camouflage colors to reduce visibility once the war started. Two gun tubs for twin-mount .303 caliber Lewis machine guns were fitted behind the wheelhouse; however, the guns themselves were not installed for the manufacturer's trials. (National Maritime Museum)



(Above) MTB-36 was armed with two 21-inch torpedo tubes flanking the wheelhouse and two turret-mounted .5 inch Vickers machine guns placed amidships. She was conned from the bridge during this run; however, control could also be exercised from the enclosed wheelhouse. Later Vosper torpedo boats eliminated the wheelhouse controls, turning that structure into the vessel's charthouse. MTB-36 cruises under overcast skies during Vosper's pre-delivery trials in August of 1940. (PT Boaters, Inc.)

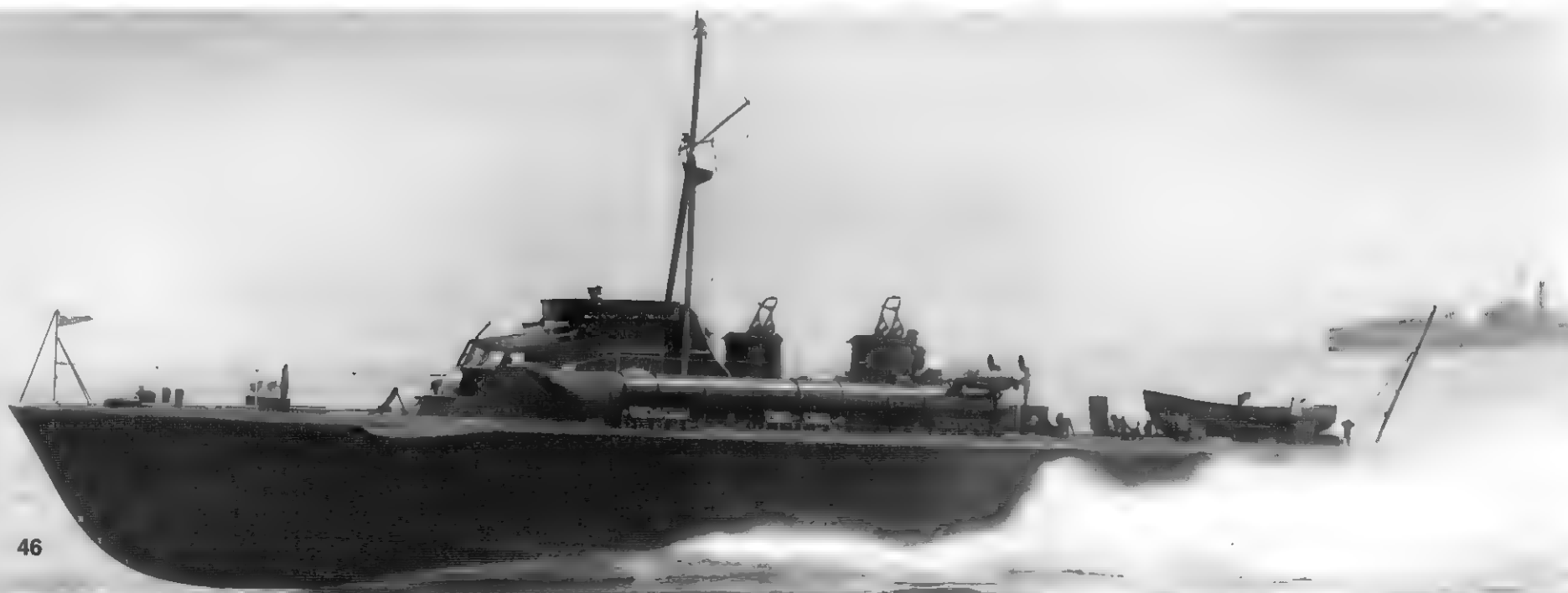
(Right) MTB-219 simultaneously launches both 21-inch torpedoes during practice in Weymouth Bay, near the Royal Navy's MTB training base, HMS BEE. The vessel was traveling at approximately 15 knots (27.8 kmh) when she fired her weapons. Torpedo launching momentarily slowed the boat slightly due to the launch force. Torpedo boats normally launched both their torpedoes simultaneously on operations to prevent asymmetrical handling problems. MTB-219 was one of four Vosper boats ordered by Greece in 1940 and requisitioned by the British in 1941. (DJ Marshall)





(Left) This unidentified 1940 contract Vosper MTB running manufacturer's trials was armed with 21-inch torpedo tubes and a Mark V turret amidships for the twin .5 inch machine guns. She did not carry torpedoes or machine guns for this test run. The boat was painted dark gray above the waterline and black below. The six portholes along the side of the hull let outside light into the crewspaces. These portholes would be covered from the inside to allow for 'blacked out' conditions at night. (Vosper Thornycroft (UK) Ltd via John Lambert)

(Below) A canvas protective cover was placed over the opening of the port 21-inch torpedo tube of this 70-foot (21.3 m) long MTB. Her polished brass ventilators contrasted with the dark gray overall appearance of the boat. A dinghy was secured to the afterdeck for lifesaving and transportation purposes. MTBs soon replaced the dinghy with smaller balsa Carley floats, which were less costly to make and reduced deck space – already at a premium. This vessel was one of two MTBs ordered by the Greek Navy in 1939 and requisitioned by the British in 1940. These two boats were placed into Royal Navy service at MTBs 69 and 70. (Vosper Thornycroft (UK) Ltd via John Lambert)

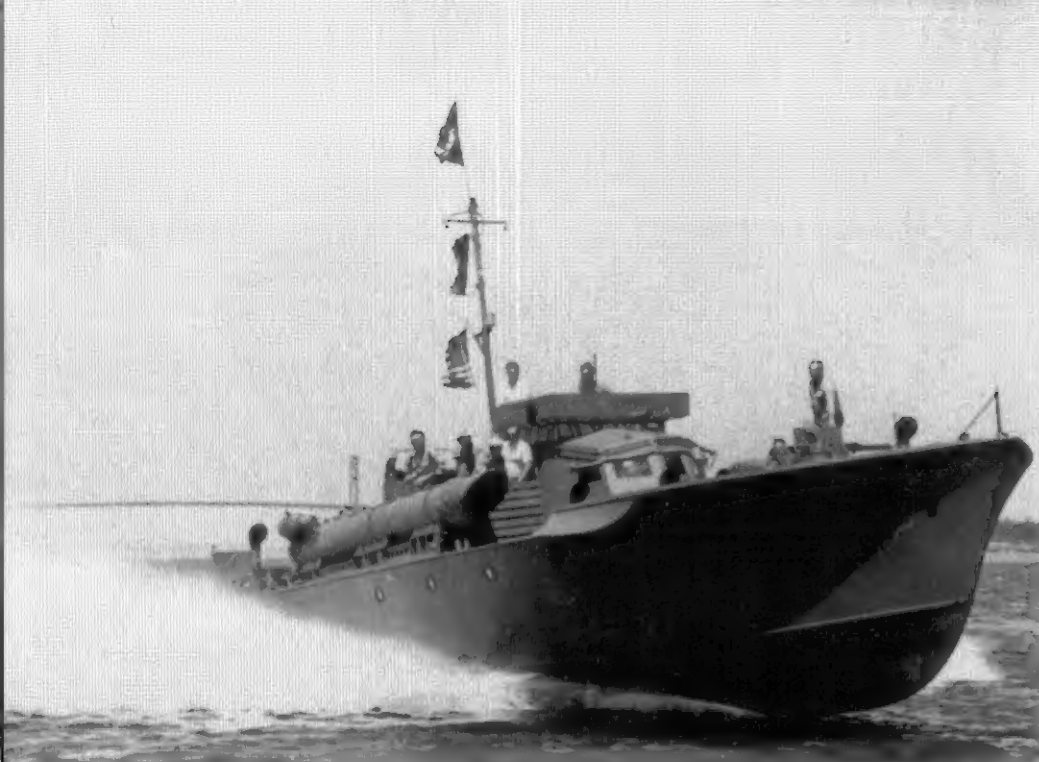


(Right) The hull and superstructure of MTB-90 was painted in white and light gray, with the light gray extending to the forward part of the lower hull. She was equipped with a Type 291U surface search radar, which featured better transmission and modulation valves and improved cathode ray tube controls than the earlier Type 286U radar. These radars could detect an 'E-boat' (enemy torpedo boat) at two miles (3.2 km) under good conditions. MTB-90 was one of six 1940 contract vessels transferred to the Free French Navy in November of 1942. She is performing trials following a refit in 1944. (Vosper Thornycroft (UK) Ltd via John Lambert)



(Below) MTB-218 – ordered for the Greek Navy as the second T.3 in 1940 – undergoes Vosper trials in June of 1941. Boat hooks, horizontally stowed on the foredeck, were used to rescue people from the water. She flew the Red Ensign, the British merchant flag, from the mast prior to acceptance by the Royal Navy. A spray of water used to cool the port Hall-Scott engine exited from the exhaust vent just above the waterline. MTB-218 served in British home waters until she was mined and sunk by German surface craft in the Dover Strait on 18 August 1942. (Vosper Thornycroft (UK) Ltd via John Lambert)





(Above Left) Herreshoff employees put MTB-294 through her manufacturer's tests on Narragansett Sound, Rhode Island in the summer of 1943. She flew the US flag from her mainmast while under US control. This boat was the eighth 1941 contract Vosper boat built by Herreshoff at Bristol, Rhode Island. MTB-294 was delivered to the Royal Indian Navy on 9 July 1943 and served in the Indian Ocean. She was returned to the US Navy on 15 March 1946. (HMM via Thomas Brightman)

(Above) This 1943 contract Type I Vosper MTB was painted in the Royal Navy's Light Standard 'F' scheme of white and pale gray in a symmetrical pattern. Vosper-built 1943 MTBs mounted their mainmasts offset to port, while American-made vessels placed theirs on the centerline. This torpedo boat was armed with a 20mm Oerlikon gun on the foredeck and 18-inch torpedo tubes along the sides. A two-inch rocket flare projector was mounted above each forward torpedo tube to launch flares up to 2.25 miles (3.6 km) out for illuminating targets at night. (Vosper Thornycroft (UK) Ltd via John Lambert)



(Left) The center rudder mounted on the keel of this 1943 Contract Type I MTB operated with the two stern-mounted rudders to reduce the boat's turning circle. Vosper added this rudder to their torpedo boats beginning with the 1940 contract vessels. This MTB on patrol was armed with four 18-inch torpedo tubes along the sides and a 20mm Oerlikon gun in the foredeck. A two-inch rocket flare projector was mounted on the forward torpedo tube beside the charthouse. The antenna for the Type 268U surface search radar was mounted halfway up the mainmast. (Vosper Thornycroft (UK) Ltd via John Lambert)



(Above) MTB-391, a 1943 contract Type I vessel, turns hard to port while returning to her home base. She was armed with four 18-inch torpedo tubes, a 20mm Oerlikon gun on the foredeck, and twin .303 caliber Vickers machine guns mounted on the after torpedo tubes. The 18-inch Mark XV torpedo was developed for aircraft delivery; thus, its body was strengthened compared to that of the 21-inch Mark VIII torpedo used earlier in World War II. (Vosper Thornycroft (UK) Ltd via John Lambert)

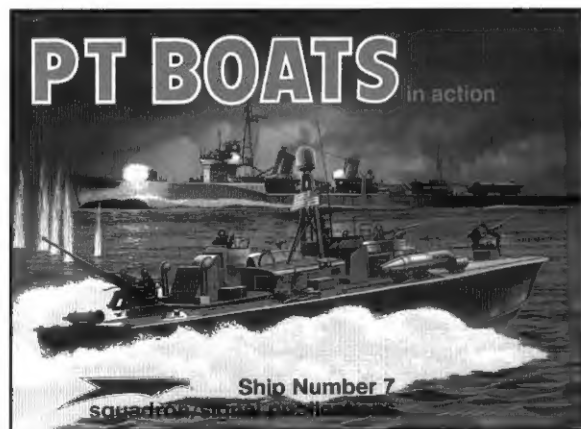
(Above Right) MTB-407 was a Vosper MTB built under license by Robert Jacobs Inc. at City Island, New York for Royal Navy service in the Mediterranean Sea. Atop her mast is the domed antenna cover for the US-made SO radar, which was installed on several Vosper boats built in American yards. MTB-407 was painted in a three-tone camouflage scheme of black, white, and light gray. She was delivered to the Royal Navy on 30 August 1944 and returned to the US Navy on 10 November 1945. (Vosper Thornycroft (UK) Ltd via John Lambert)

(Right) Vosper-designed PT-433 runs at full speed off the Rhode Island coast while on Herreshoff trials in the spring of 1944. The vessel flies the US flag on her yardarm and the company pennant at the top of the mast. She was delivered to the Soviet Navy as TKA 249 in June of that year. The cylinder atop the 21-inch (53.3 cm) torpedo tube held compressed air used for launching the torpedo. These tubes were used on Higgins PT boats delivered to the US Navy early in World War II. TKA 249 was stricken from Soviet service and destroyed in 1954. (Herreshoff Maritime Museum)

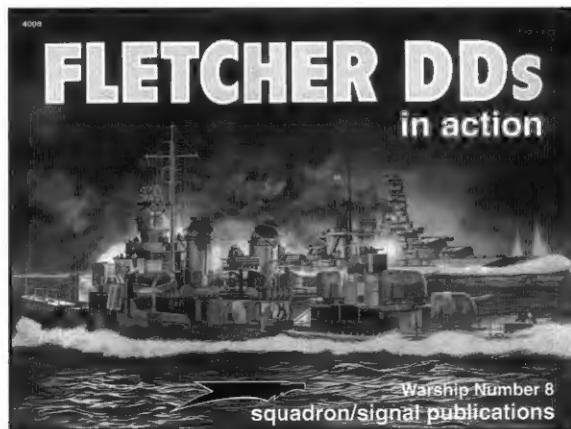


Sound General Quarters!

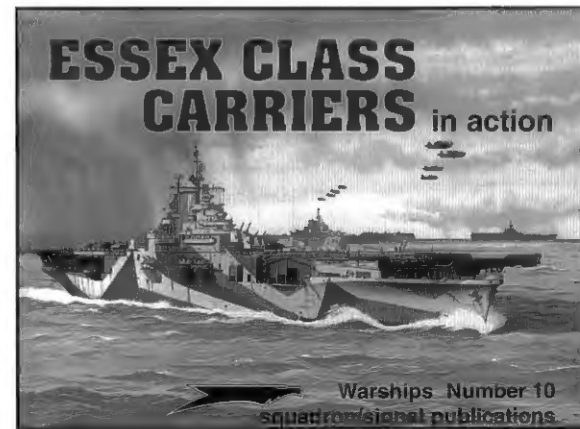
More warship titles from



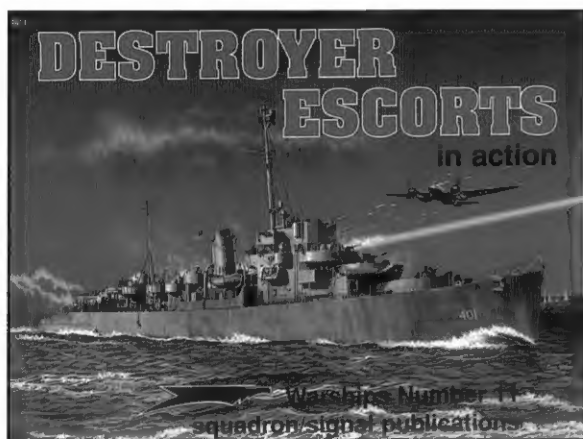
4007 PT Boats in action



4008 Fletcher DDs in action



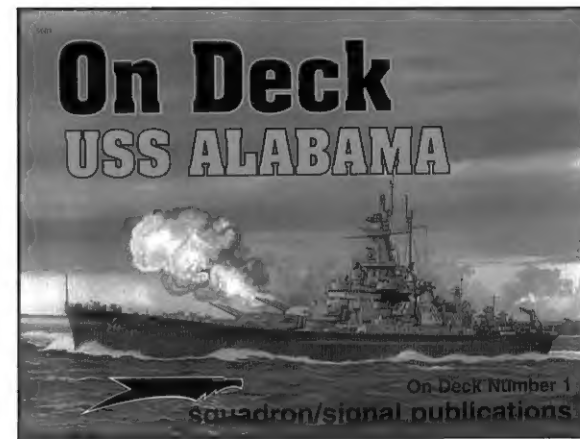
4010 Essex Class Carriers in action



4011 Destroyer Escorts in action



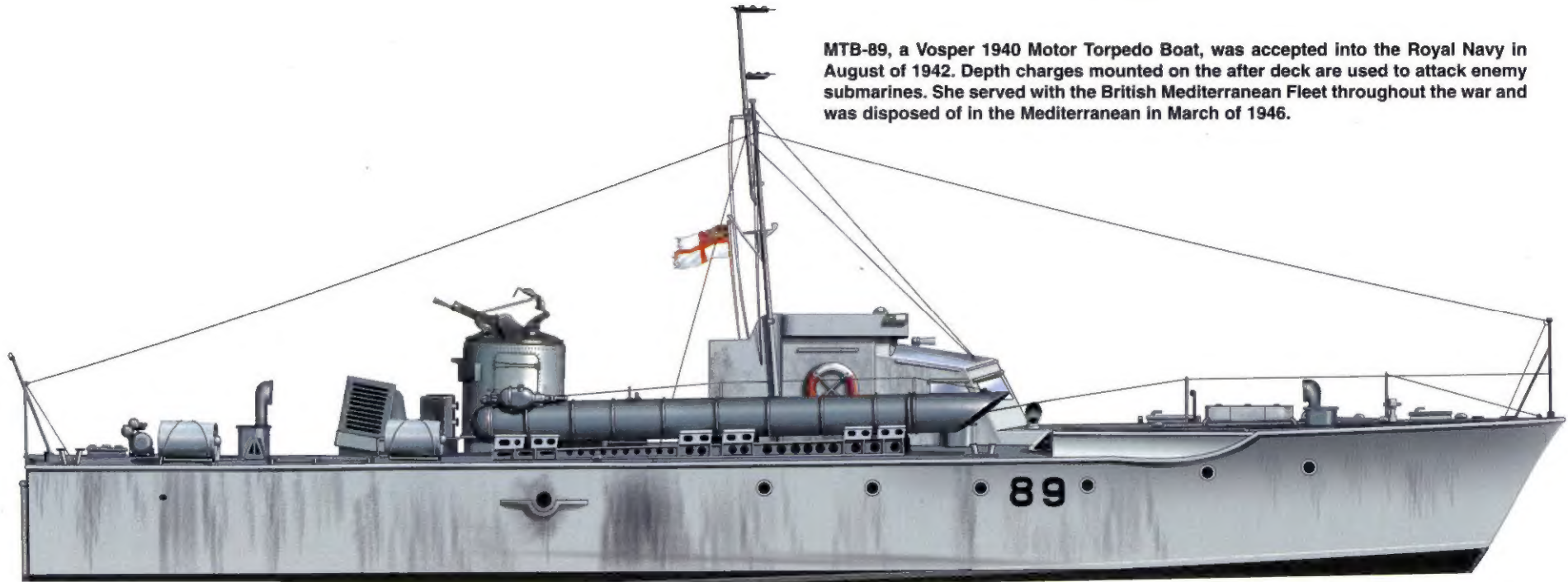
4012 U.S. Light Cruisers in action



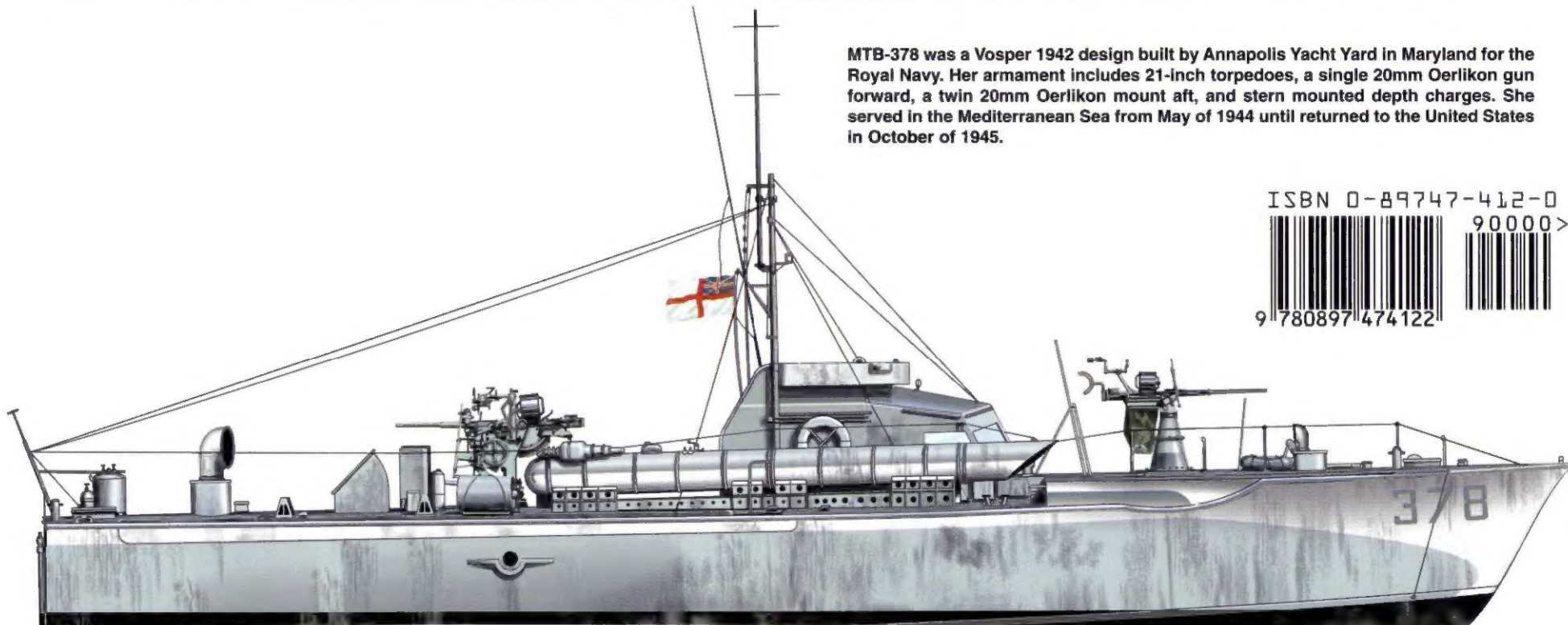
5601 USS ALABAMA On Deck

squadron/signal publications

MTB-89, a Vosper 1940 Motor Torpedo Boat, was accepted into the Royal Navy in August of 1942. Depth charges mounted on the after deck are used to attack enemy submarines. She served with the British Mediterranean Fleet throughout the war and was disposed of in the Mediterranean in March of 1946.



MTB-378 was a Vosper 1942 design built by Annapolis Yacht Yard in Maryland for the Royal Navy. Her armament includes 21-inch torpedoes, a single 20mm Oerlikon gun forward, a twin 20mm Oerlikon mount aft, and stern mounted depth charges. She served in the Mediterranean Sea from May of 1944 until returned to the United States in October of 1945.



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